

MAY 1911 ~ No 101

Issued Every Month

for Free Distribution to Users
of Machine Tools

HITCHCOCK'S MACHINE TOOL LIST

A Reference Book for Buyers
of Iron Working Machinery

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago

MURCHEY

Collapsing Taps

Murchey Taps are built
for those shops where

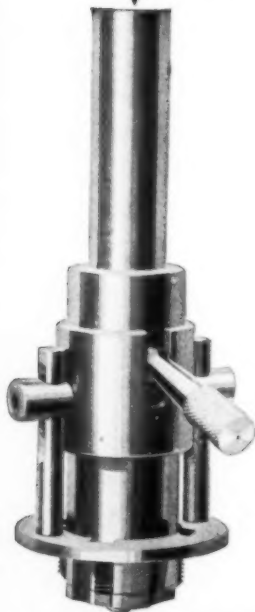
**Speed
and
Accuracy
Prevail**

Murchey's have widest
range--fewest parts--surest
and most rapid adjustment.
As strong as solid taps and
twice as fast.

**Cut Straight or Tapered
Threads. Stripping Absolutely
Impossible.**

**Tap-Ream-Face
One Operation**

*Write us for information
that will lead to big
savings in YOUR shop.*



You Need Them

Murchey Machine & Tool Co.

Detroit

56 Porter St.

Mich.

154

Use More Tools— Not More Machines

The so-called second operations on duplicate milled parts—slotting, side milling, cross drilling and similar extra cuts—are **not** second operations when done the Acme Multiple Spindle Way. They are finished automatically on the one machine.

The varying combinations of eight tools which can always be used at the same time include those for both ordinary and special operations. Acme Automatics therefore reduce the time for screw machine work to the low limit—**one operation**. And the added equipment for unusual jobs consists of extra tools—not more machines.

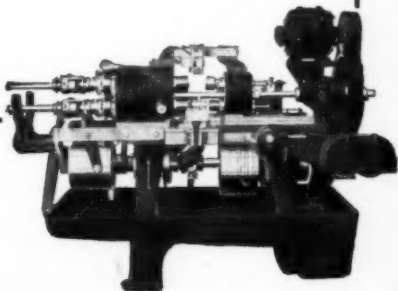
For rapid output at the lowest cost per piece we'll furnish Acme estimates from your samples. The figures are convincing.

*Catalog?—Ask for the "Method Illustrated"
showing the saving on 200 typical jobs.*

NEW YORK
BOSTON
CHICAGO
DETROIT
ATLANTA
MONTREAL

**THE NATIONAL-ACME
MANUFACTURING CO.
CLEVELAND**

WAREHOUSES—NEW YORK, 77 WHITE ST.—CHICAGO, 23 SO. JEFFERSON ST



One Man

**Easily Handles up to 4,000 Lbs.
Including Lifting and Transporting**



The "Canton"

**Portable Cranes and Hoists
Are Thoroughly Dependable**

From their drop-forged hooks, blocks, axles, forks and yokes, to the heavy wrought-iron-band reinforcement of the housings and the guaranteed hand-forged tested BBB chains, they are dependable in every way.

They are invaluable in any factory where there is no elaborate overhead equipment, and even there they serve as a wonderfully handy and economical auxiliary.

Write for our Illustrated Catalog E-8

Canton Foundry & Machine Co.
Canton, Ohio

Fear is Holding Down Your Press Production

Each of your press operators fears his machine. He fears for his fingers. Your production suffers.

Make injury to your press operators impossible. Eliminate fear entirely—in a way that doesn't hinder production. Get 100% efficiency production from your presses and your press operators.

Install **Cream City Accident Preventors**

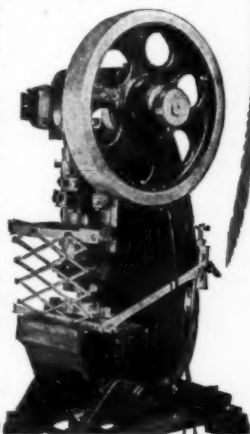
They eliminate fear entirely by making injury to press operators absolutely impossible. They do not hinder the workman. Work is always visible. Press remains treadle operated. Hands are always free to handle work speedily.

The operator soon forgets he has a guard on his machine—unless he gets his hands in danger. Then the Cream City prevents injury.

Write for our special Bulletin, "Perfect Press Protection That Increases Press Production."

**Geuder, Paeschke
& Frey Company**

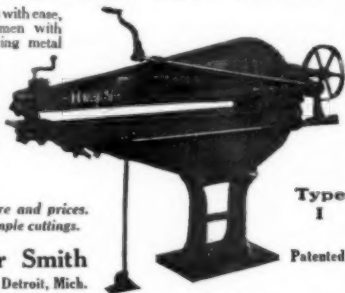
1321-1700 St. Paul
Avenue,
Milwaukee,
Wis.



"Quickwork" Rotary Shear

With 60" Throat. Cuts Irregular Curves in
16-Gauge Steel without Cutting in from Side.

Cuts largest sheets with ease,
faster than five men with
hand snips, leaving metal
flat and edges
perfect. Saves
10 to 40% in
stock and 75 to
90% of labor.
The deep throat
adapts it to cut-
ting large panels,
for auto bodies,
etc.



Type
I

Patented

Send for literature and prices.
Ask for free sample cuttings.

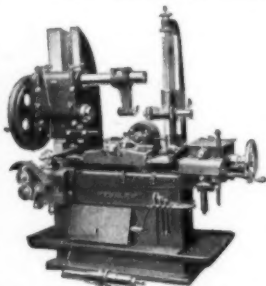
H. Collier Smith

815 Scotten Ave., Detroit, Mich.

Chicago Representatives, Stiles-Morse Company, 565 Washington Blvd.

Newark Gear Cutting Machines

Make Accurate, Smooth Running Gears



A tree is know by its
fruits.

The "Newark" is
known by the accurate,
smooth running gears
that it cuts.

It is simple in con-
struction, automatic in
operation, and has an ac-
curate indexing mech-
anism with safety stop.

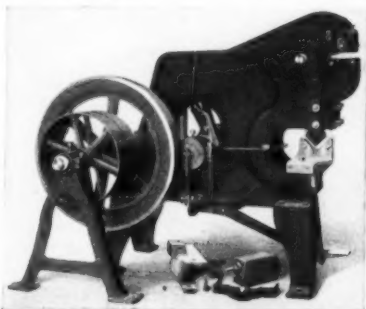
A manufacturing tool,
made in all sizes, for
cutting satisfactory gears
in quantities for all pur-
poses.

Put it up to us

Newark Gear Cutting Machine Co.

69 Prospect St., Newark, N. J.

Punches—Shears—Bending Rolls
The Beloit
Combined Power Punch And Shear



Built in five sizes.

Nos. 51, 52, 53, 54 and 55

Direct connected motor or belt drive

This is the best all around punch and shear in a combined machine of moderate cost. It is heavy and substantial, and amply back geared to require the minimum amount of power; is strong, compact, and easy to operate. Can be equipped with angle shearing attachment, architectural jaw, or for special work.

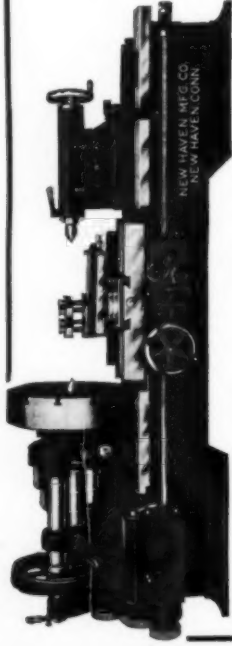
We are putting out a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls.

We do not overrate the capacities of our machines.

Write for catalogue and prices.

Slater, Marsden & Whittemore Co.

Box 444, Beloit, Wis.



A lathe with an experience of over 60 years behind it, and with all that is best in modern service built into it.

Our New Heavy Pattern 36-In. Engine Lathe

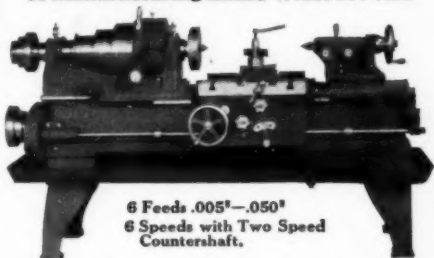
With 14-ft. to 36-ft. Bed and Back Geared or Triple Geared Head

Back geared head has 5-step cone for $4\frac{1}{4}$ -in. belt; triple geared has 4-step cone for 6-in. belt. Forged crucible steel spindle has $3\frac{1}{8}$ -in. hole. Improved feed box provides three instantaneous feed changes which, with change gears, give a range of feeds of 4 to 112 per inch; range of threads cut, 1 to 14. Carriage heavy and rigid; compound rest has power cross and angular feeds; apron is our improved double wall box type. A lathe that is carefully built throughout for stability, power, accuracy and convenience.

Tell us your needs—single or double back gear or triple gear—belt or motor drive—anything from 18-in. to 65-in. tawing.

New Haven Manufacturing Co., - New Haven, Conn.

15" Extra Heavy Plain Turning Lathe A Manufacturing Lathe Without Frills

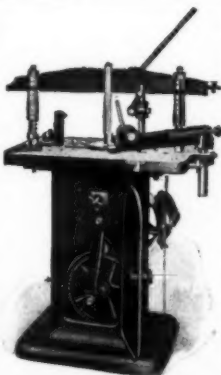


**6 Feeds .005"—.050"
6 Speeds with Two Speed
Countershaft.**

Three Step Cone for 4" belt. Diameters of steps, 7", 9", 12". Adjustable longitudinal stops both directions. Headstock and tailstock spindles set over. Double plate apron.

Why buy the frills unless you need them?

THE GREAVES-KLUSMAN TOOL CO., Cincinnati, Ohio



Davis Keyseaters

Stand for Rapid Production

They meet every requirement as a manufacturing machine and can be economically used on large and small lots. Also adapted for Slotting, Oil-grooving, cutting Keyways in Bell-cranks and similar work.

Made in two sizes:

No. 1 Capacity $\frac{1}{8}$ in. to 1 in.

No. 2 Capacity $\frac{1}{8}$ in. to $\frac{3}{4}$ in.

Write for complete information and copy Treatise on Keyseating, mailed free

The W. P. Davis Machine Co., 307 St. Paul St., Rochester, N. Y.

For Taking Heavy Cuts



**16-in. Lathe
With 3-Step Cone and
Double Back Gears**

A small engine lathe, sold at a moderate price, that is accurate, handy and strictly modern, and that has the power and stiffness to take the heaviest cuts without chatter or vibration.

The Von Wyck Machine Tool Co., Cincinnati, O.



**14-in. x 6-ft.
Standard Monarch Lathe
Net weight 1400 lbs.**

The best lathe in the world selling at a low price. You should not buy any lathe from 14 to 20-inch swing without first seeing the Monarch lathes.

When you buy the Monarch lathe you get guaranteed accuracy and guaranteed lathe satisfaction, at a low price.

Let us send you catalog

THE MONARCH MACHINE CO., - Sidney, O., U. S. A.

“FOX”

For More Than

50 Years

The Standard

Brass Finisher's Lathe

14 Styles and Sizes

THE AMERICAN TOOL & MACHINE CO.

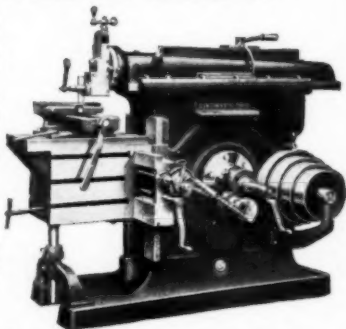
Incorporated 1864

BOSTON

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

24", 28", 32"
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B.,
Cincinnati, O., U.S.A.



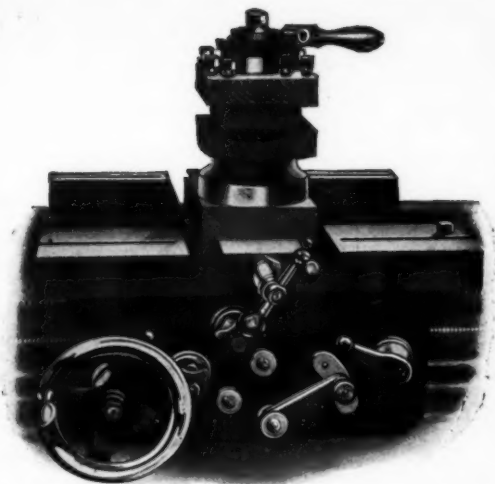
Quick Action

This is what we call this new Machine Handle. Attached to any power tool, especially the heavier types; adjustments are made with more speed and less effort.

All kinds of standard and special Handles from steel for power tools and similar purposes.

Send for Catalogue and prices

The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio



F. & S. Four Sided Tool Posts

**Transform your Engine Lathe
into a Multiple-Production Lathe**

Don't cling to the old-fashioned tool posts, but take a step forward in shop economy by equipping your lathes with the Fay & Scott patented type.

A single movement of the lever quickly brings one of the four tools into operation, locking it automatically. We fit it to your old lathe and supply all builders for new machines. Insist on having it on the next you buy.

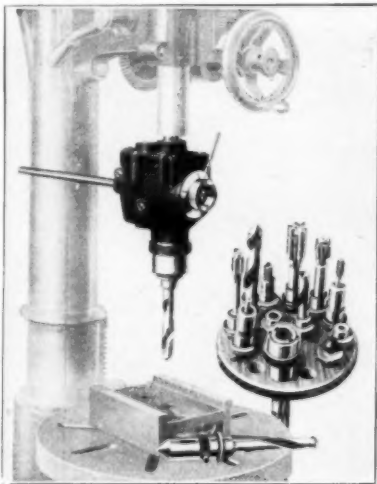
We have a new Booklet. Post yourself today.

Fay & Scott, Dexter, Me.

25% to 50% Saved

on a lot of Drill Press work by the Wizard Variable Speed and Reversing Attachment.

Permits of changing tools without stopping the machine and gives the right speed for every tool and a reverse for tapping, stud-setting, etc. Converts your old Drill into an up-to-date machine and saves running your new Drill at machine-rackings speeds.



Try One at Our Risk

A copy of our Catalogue No. 4 might point the way to some big savings in your shop. Describes the whole Wizard proposition and other real time-savers.

May we send you one?

The McCrosky Reamer Co.
Meadville, Pa.



Electric Air Cooled Drills

Are Best by Test

Are You Still Paying Two
or three prices for a job
just because you have al-
ways done so



The fact that the U. S.
Government tests prove they
are superior in every respect
should be convincing evidence
to all users of this type of tool.

Aside From This

there's the evidence of thousands of users all over the United
States. Would they use them if they were not the best? Hardly.

Want a Catalogue? A Postal will bring it.

We use aluminum for Casing on all Drills to cut down weight
Power from any Lamp Socket

SENT ON TRIAL ANYWHERE

*Made for alternating or direct current
Just attach it to your nearest lamp socket*

The United States Electrical Tool Co.
Cincinnati, Ohio

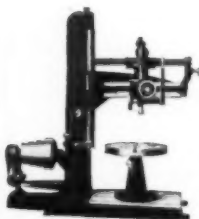
NEW YORK, 50 Church St.

BOSTON, 12 Pearl St.

CHICAGO, 8 E. Michigan St.

PHILADELPHIA, Heed Bldg., No. 1211 Filbert St.

A Radial Drill that will
not act as freely as the
eye is not a perfect tool.



The New Gang Radial Drill
Catalogue ready for mailing

THE WM. E. GANG CO.
Cincinnati, O.

"Economy" 14" Sensitive Accuracy Guaranteed

For high quality of workmanship, accuracy, design and material, our No. 205 Drill has no superior today. Every detail has been worked out to effect the greatest convenience and efficiency, hence it makes good in tool room, general manufacturing and repair shop. Upper table swings around column and can be tilted to any angle; lower table is adjustable vertically, and has a new patented centering device, a combination of three centers in one.



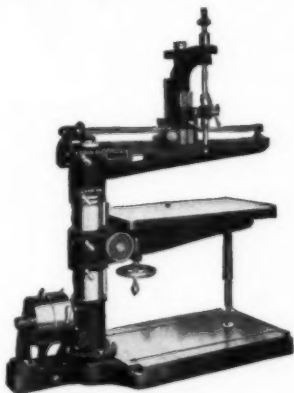
*Write for description of our 14-in. and
10 OTHER STYLES of Drill Presses*

ROCKFORD LATHE & DRILL CO., - Rockford, Ill.

Also 13, 14 and 16-inch Engine Lathes

You Do More With a T. & F.

Results—Lower Costs and Bigger Profits



The Taylor & Fenn high-speed drilling machine enables you to drill small holes in big pieces at a big saving. It combines the flexibility of the radial with the efficiency of the sensitive, consequently it has a range and productive capacity far beyond any other type of drill for the production of holes up to $\frac{1}{4}$ -in. in diameter.

While thoroughly rigid in construction, it is the lightest machine of its type, easiest to handle and quickest to adjust—saving seconds at every move. Automatic power feed, lever feed, high speed sensitive or tapping heads may be used, either singly or in combination.

*Designed to save time and lower costs.
Send for cost comparisons today.*

The Taylor & Fenn Company
Hartford, Conn.

The Modern Line of Mechanics' Drills

Now Made by Us

Everybody knows what Mechanics' Drills are by reputation, and hundreds know them favorably from experience.

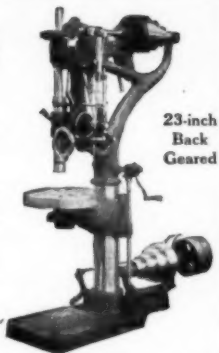
In our new plant, equipped with the latest tools, we are now making them better than ever.

This famous line includes 14-in. to 36-in. Standard Uprights, and 2, 3, 4, 5 and 6-spindle Gang Drills.

*We would like your inquiry
You will like our drill*

ROCKFORD MACHINE TOOL CO., - Rockford, Ill.

Manufacturers of Planers, Shapers and Mechanics' Drills.



**23-inch
Back
Geared**

20" Power Drills

**Made in
Eight Styles**

Round or Square Base

LEVER FEED

LEVER and WHEEL FEED

**POWER FEED and Automatic
Stop**

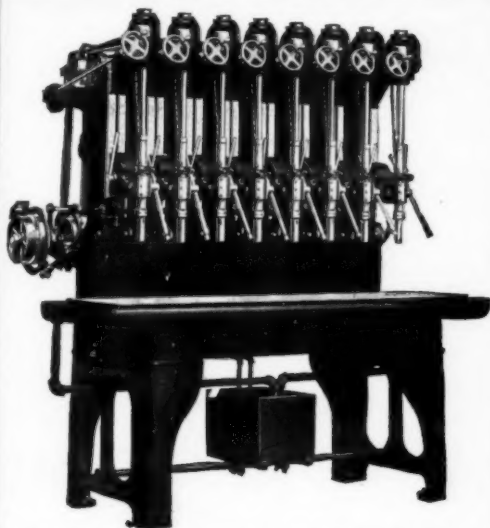
**POWER FEED with Back Gears
and Automatic Stop**

Send for catalog



**Fig.
862**

**The Silver Mfg. Co., 385 Broadway
SALEM, OHIO**



For Large Production in Light Drilling

Our 8-spindle, Class L machine with 8-inch overhang is peculiarly suited to the rapid drilling of light interchangeable parts, which often require a relatively large number of small holes. It is no exaggeration to say that these can be made with uniform accuracy, more rapidly, and therefore at less cost, on this machine than on any other. It has all the Henry & Wright improvements which make for speed and economy, with some modifications designed to adapt it to the especial work for which it is intended. These modifications are the results of patient study and experiment with a particular end in view, and they represent an advance in drilling machine design that means real cost reduction for manufacturers.

*We are saving money for others; perhaps
we can for you. Costs nothing to find out.*

The Henry & Wright Mfg. Co., 760 Windsor St., Hartford, Conn.

Let us study Your Drilling Problems

Write us just what trouble you are having with drilling jobs. Our special experimental department will study your particular conditions and problems and suggest a remedy.

"Detroit" Twist Drills

Your difficulties may be due to the methods of application, to feed, to speed, to grinding—or it may be that your work requires specially tempered tools.

Whatever your drilling problems may be we can aid you in solving them. Over 4000 different small tools kept in stock; others on special order.

Write us today and ask for Catalog J.

Detroit Twist Drill Company

Detroit

510-522 Fort Street

Michigan

633 Market St.

412 First Ave.

30 Church St.

Philadelphia

Pittsburgh

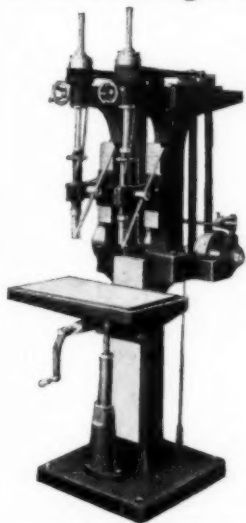
New York

437



The
Avey

Ball Bearing Drilling Machine



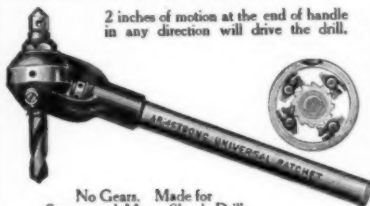
**Saves
Time
At
Every
Turn**

Write today for further information

The Cincinnati Pulley Machinery Co.
Cincinnati, Ohio

The Armstrong Universal Ratchet Drill

Has often earned its cost ten times over on one job by saving delay and expense of disconnecting heavy machinery.



2 inches of motion at the end of handle in any direction will drive the drill.

We make a complete line of Ratchet Drills:

Short Head,
Packer,
Weston,
Reversible

All Sizes

No Gears. Made for
Square and Morse Shank Drills.

Catalog for the asking

Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



Landis

Diamond Holders

And

Diamonds for All
Mechanical Purposes

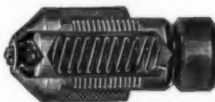
This *Diamond Holder* is a mighty good one and the kind you should use. If it appeals to you, try one and be convinced it is just what you were looking for. If it doesn't appeal to you, get our descriptive circular; it will tell you something about Diamond Holders that will save you money.

Circulars and prices on request. Better write today.

**Thomson Tool
& Supply Co.**

814 I. O. O. F. Bldg.

INDIANAPOLIS, U. S. A.



Norton

A Heavy-Production Drill

**20-Inch
Back Geared**



**With
More
Power,
Increased
Stability,
Permanent
Accuracy
and
Greater
Operating
Convenience**

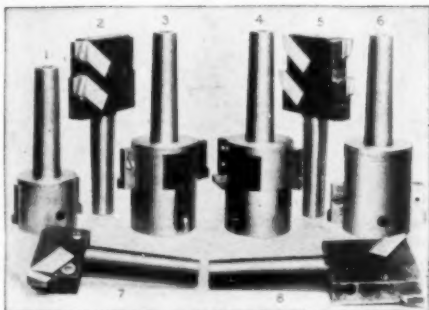
Power: The heavy, rigid construction, the large bearings and the location of the driving gears near the work, assures a powerful drive to the spindle with the least strain.

Permanent Accuracy: The lower bearing, which is 6-in. long by 2 $\frac{3}{4}$ -in. diameter, is a split phosphor bronze bushing, easily adjusted to take up any possible play nearer the drilling point than on other drills.

Time Saving: Note, for example, the star lever hand feed. It takes only one hand—no ratchet to fool with. One free hand saves lots of time on some kinds of work.

These are only pointers. Write for full details.

CANEDY-OTTO MFG CO., Chicago Heights, Ill.



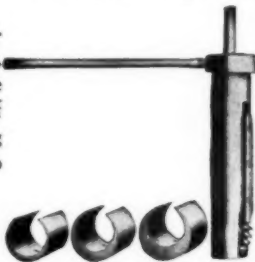
Capacity of this outfit, 400 Auto Hubs Daily, in Magazine Machine. Write for Catalog H.

THE KELLY REAMER CO., - Cleveland, Ohio
C. W. Burton, Griffiths & Co., London, Agents for England.

KEYWAYS cut on the drill press

Internal keyways, either straight or taper, are cut perfectly on the drill press by means of a high speed milling cutter in holes 5-8 to 12-in. diameter.

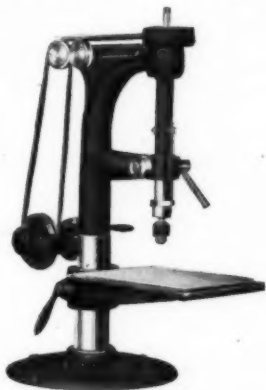
Over 5000 in use.



Get Booklet O and prices

National Machine Tool Co.
2270 Spring Grove Ave., Cincinnati, Ohio

Something New In
Bench Drills



A High Speed Ball Bearing Machine

Maximum Spindle Speed
10,000 R. P. M.

Careful design and high grade workmanship throughout; accurate balance of high speed parts for minimum of vibration; Hess Bright Ball Bearings.

Write us today

Leland-Gifford Co.
Worcester, Mass., U. S. A.



Drill by Electricity

It's the Modern Way



"Van Dorn" Portable Electric Drills, Reamers and Grinders

They have won the confidence of thousands of users

Why?

Because they are what Electric Drills and Grinders

Should Be

Practical—Powerful—Dependable Machine Tools

Write today for Catalogue "A"

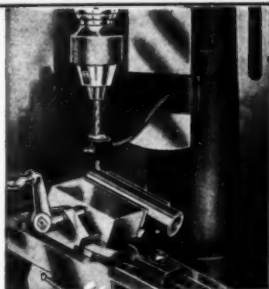
The Van Dorn Electric Tool Co.

General Office & Works, Cleveland, Ohio

DISTRICT SALES OFFICES:--New York, Boston, Baltimore, Pittsburgh, Buffalo, Chicago, Detroit, St. Louis, Minneapolis, Los Angeles, San Francisco.

REPRESENTED IN Toronto, Montreal, Winnipeg, Vancouver, Coventry, England; Paris, France; Christiania, Norway; Sydney, Australia; Cape Town, South Africa; Stockholm, Sweden.

Time
Saving
Convenience



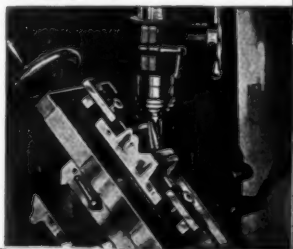
The Knight Milling & Drilling Machine

is the Master Machine for hard machining of all kinds. It has no equal in the tool room and experimental department. You can mill, bore and drill at any angle with only one setting of the work.

Send for our booklet and ask questions, and we'll try to make it clear to you how its great convenience makes it equal to 2 or 3 ordinary machines. We make 3 sizes.

W. B. Knight Machinery Co.
St. Louis, Mo.

*Saving 20 to 50
per cent of
high-priced labor
is worth while*



For Workmen's Clothes

Terrell's Steel Lockers

Give Most Satisfactory Protection



Some provision other than hooks or nails is recognized as necessary, and lockers are conceded to be the most convenient, sanitary and secure storage available.

They should be of steel, for security, durability and economy.

They should be of unit construction, to permit of compact arrangement, and to make it easy to shift them or to increase or decrease capacity.

They should be well designed and carefully made, that once installed they may give no trouble and create no expense.

Terrell Unit Steel Lockers are going into the best manufacturing plants in the country just because they meet these modern requirements. They are designed and built by specialists whose study of the problem has been supplemented by a broad experience.

And because we are specialists, we have succeeded, not only in making good lockers, but in getting their cost down to rock bottom.

We can tell you some things about lockers it will advantage you to know. No cost, no obligation. Write now.

Terrell's Equipment Company

Hall



There's Nothing So Good As Terrell's Steel Bins and Shelves For Material Storage

Why?

Because, while it costs but little more to begin with, it saves money, time and labor in a dozen ways, and goes on saving these things year in and year out, as long as your plant stands.

It takes less space, and the space it takes it uses to best advantage.

It decreases fire hazard, reducing both the risk of loss and the cost of insurance.

It helps to an orderly system in handling material, saving stock, workmen's time and their employer's money.

In a word, Terrell's Steel Equipment pays.

Let our experts analyze your problem and show where and how it will pay you. Our advice free. Write now.

Hall & Division Sts. Grand Rapids, Mich.

**A Good
Basis
to get
Together
on**



You have sheet metal work that must be done. There is not enough of it to keep a special sheet metal department always busy. If you did your own sheet metal work, your overhead would devour your profits. We do sheet metal work on contract. We offer high-grade work, prompt deliveries, and low prices. We can save you money. Let's put our heads together.

G.P.&F. Service

Sheet Metal Work

We are sheet metal working specialists. We have buildings occupying 15 acres and thoroughly equipped with modern machinery. We have the "know how" that comes from 33 years of specialization on this class of work. Scores of large manufacturers consider us their sheet metal department. Our machinery is always busy. Our overhead is minimized. We do our customers' work at a saving to them and at a profit to ourselves. Our service is always first-class and deliveries prompt on the dot.

Our Estimates will Prove Our Ability to Save You Money

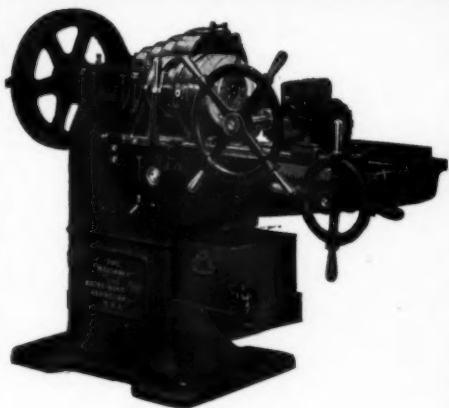
Send samples or complete specifications or both. And state the quantity required. Our prices will convince.

We are specialists in Stamping, Drawing and Spinning in Brass, Copper, Aluminum, Tin, Monel Sheet and Steel. Also thoroughly equipped to do Porcelain Enameling, Japanning, Tinning, Hot Galvanizing, and any description of Job Work. Get our estimates.

Geuder, Paeschke & Frey Co.

1321-1700 St. Paul Ave.

MILWAUKEE, WIS.



Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio

Our Pipe Benders Meet The Demand



Ever since their invention our hand Pipe Benders have had a steady sale and have given universal satisfaction.

Recently, we have made some improved attachments that permit of a wider range of work and open up a new field in the kind of bending the machine will accomplish.

If you do pipe bending you will find our machine an economical, simple and very efficient appliance in reducing costs and doing better work.

We have a Bulletin waiting for you. Send for it now.

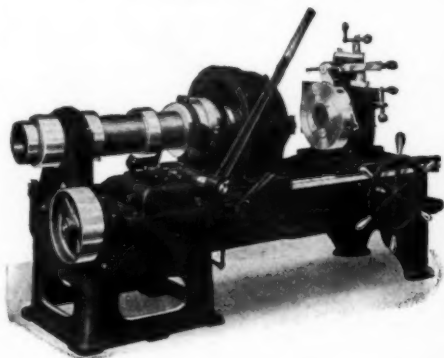
Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Manufacturers of Cylinder Boring Bars, Portable Millers, Crank Pin Turning Machines, etc.

Quick and Accurate Pipe Threading

B. & K.'s Save Money



YOU CAN KNOCK OUT a lot of work daily—you can handle B. & K.'s without gloves and apply plenty of power by belt or motor route. The quick chuck, operated while in motion by a simple movement of the lever, is an exclusive feature.

Any degree of accuracy may be obtained, as they are adjustable to the 1-1000 part of an inch, and B. & K.'s are so simple that the average workman operates them easily.

Write us your needs, and we'll advise which one of our 17 styles and sizes will best suit *your requirements*.

Bignall & Keeler Mfg. Co.

Edwardsville, Ill.

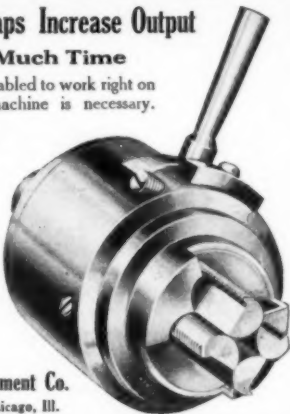
"M. E. C." Taps Increase Output And Save Much Time

The operator is enabled to work right on —no reversing of machine is necessary. No amount of chips ever interfere with the smooth action of "M. E. C." Collapsible Taps.

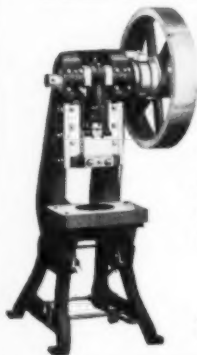
Equally good in brass, iron and steel.

Glad to send you one of our 11 sizes on trial, free. Your address, please.

Manufacturers Equipment Co.
171 N. Jefferson St., Chicago, Ill.



Watch Your Expenses Drop Your Profits Jump When



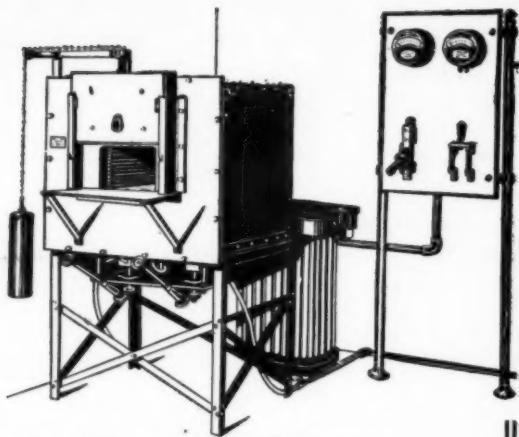
HIGH DUTY
ROCKFORD
PUNCH PRESSES

Are Put On the Job

Their construction cuts power requirements $\frac{1}{2}$ and allows greater speed. You get more work at less cost.

*Investigate these Profit Boosters.
Write today.*

The Rockford Iron Works
Rockford, Ill.



Cut Your Tool Costs

—by eliminating the losses due to imperfectly hardened tools. Make every tool as accurate and long-lived as perfect hardening can make it. A competent tool hardener and the

Hoskins Electric Furnace

form a combination that can produce tools fifty to several hundred per cent more efficient than any you've ever had before.

The non-scaling, non-warping electric heat of the Hoskins Furnace and the accuracy of its regulation are a part of the reasons why. The rest are told in our "Bulletin 10." Ask for it today.

HOSKINS MANUFACTURING COMPANY

Electric—Furnaces, Pyrometers and Heating Appliances
"International" Ammeters and Voltmeters

461 Lawton Avenue, DETROIT

Otis Building
CHICAGO

Oliver Building
PITTSBURGH

30 Church St.
NEW YORK

Canadian Factory: Canadian Hoskins, Ltd., Walkerville, Ont.



Registered
Trade Mark



What's He Doing?

Inspecting for accuracy in size, angularity and parallelism, Vise Castings ground from the rough on a

Besly Grinder

Don't use a planer, miller or shaper on such work. An inexpensive Besly Grinder operated by unskilled labor will do the work quicker and better.

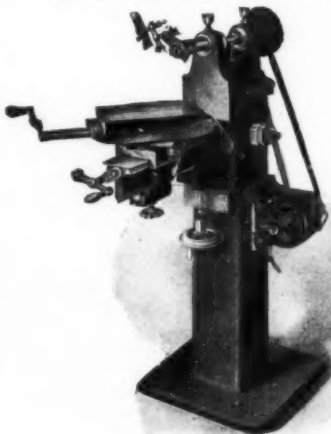
Write

Chas. H. Besly & Co.
120-D North Clinton St.
Chicago, U.S.A.

Garvin

Universal Cutter and Surface Grinder

Simple, light running, easy to set, accurate, large capacity and all varieties of cutters provided for. Will grind Cutters 14 in. x 6 in., and Surfaces 6 in. x 9½ in.



Universal Cutter and Surface Grinder, with Motor Drive

Immediate Delivery

FOR FURTHER INFORMATION { ASK YOUR DEALER
OR
WRITE US DIRECT

Send for Pamphlet No. 168

The Garvin Machine Co.
Spring and Varick Sts., - New York City

Cut High Speed Steel without Waste Of Labor, Time or Material

Don't nick and break your costly stock; cut it off smooth and square with

Peter Brothers' Ball-Bearing Abrasive Cutter

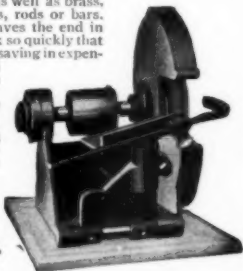
It cuts any hardened steel, broken reamers, taps, drills and forming tools, as well as brass, copper and aluminum in tubes, rods or bars. Does not draw the temper; leaves the end in perfect shape; and does its work so quickly that the cost is next to nothing. The saving in expensive material, and in cutting and grinding time, quickly pays the cost of the machine.

This 12" size cuts up to 2½" stock at any angle to 45 degrees. Ball bearings; adjustable gauge; ball bearing countershaft included. Eight-inch size cuts to 1" in high speed steel.

Fifteen days' free trial to prove its value in your own shop.

Write us or ask your dealer

PETER BROTHERS MFG. CO.
113 Railroad St., Algonquin, Ill.



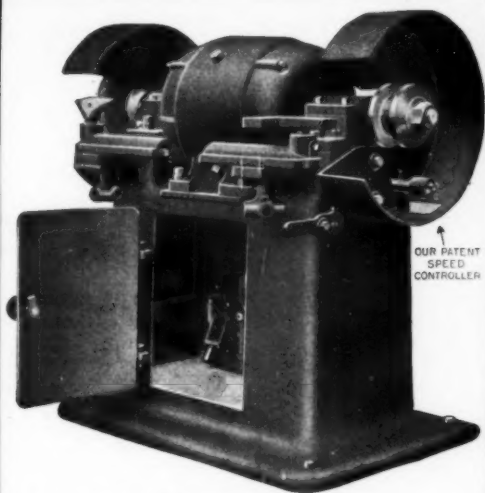
Guard Your Grinding Wheels

Write today for circular and quotations on **Valley City Adjustable Protection and Exhaust Hoods**. Applicable to any make of grinder. Made in all sizes and in grey iron, malleable iron and crucible steel.

Valley City Mche.Wks.

Campau & Fulton Sts.
Grand Rapids, Mich.





How Much Profit

—do you average on each workman at the end of the year—10 per cent, or 20 per cent, or more, or less?

And how much must an emery wheel wear down in diameter, reducing its periphery speed and therefore its grinding efficiency, before you actually lose money on the operator? The margin isn't large.

The Ransom Motor Driven Grinder With Ransom Patent Speed Controller

automatically maintains the same periphery speed as an emery wheel wears down. The operator can give you full value all the time, including the profit margin. And it makes speeding too fast for safety an impossibility.

Our free Booklet No. 9 describes all sizes.

RANSOM MFG. CO., Oshkosh, Wis.



A Gardner Grinder At Work

on the famous Lumen bearings. The bottoms are faced off and the two ends ground parallel and to given length. The output is way ahead of former methods of machining these pieces; a marked saving in material is effected; and, the standard of accuracy is dependable at all times.

This is one of the hundreds of jobs being done daily to great advantage on modern Gardner Grinders. On work suited to these machines we guarantee an increased output of 3 to 30 times. Send us some of your unfinished samples for a free demonstration, and you will be surprised to learn how fast and accurately some of your surfacing operations can be performed by the Gardner Grinder way.

"Actual Tests," a free booklet, shows 24 illustrated reports

Gardner Machine Company

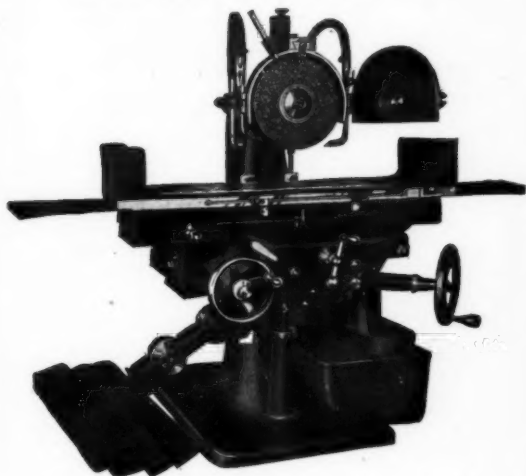
The Disc Grinding Authorities

Beloit, Wisconsin

Largest Disc Grinder Builders in the World

W. & M. Wet Surface Grinders

A Big Step in Advance

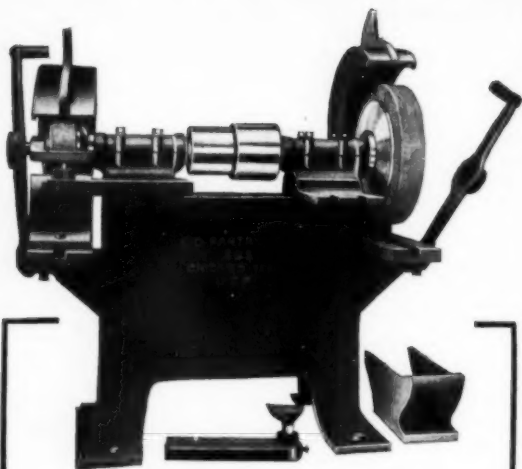


This No. 3 Surface Grinder works to as fine limits of accuracy as any standard surface grinder made. This is conservative, and yet where the nature of the work allows it, this machine will take cuts up to .125" deep with .100" cross feed. Full automatic feeds in both directions. Ample capacity for pump, diamond wheel truing mechanism, excellent protection from dust and dirt are features demanding your attention.

Ask for No. 3 surface grinder circular

Wilmarth & Morman Co.

1185 Monroe Ave., Grand Rapids, Mich.



Partridge Heavy Grinder

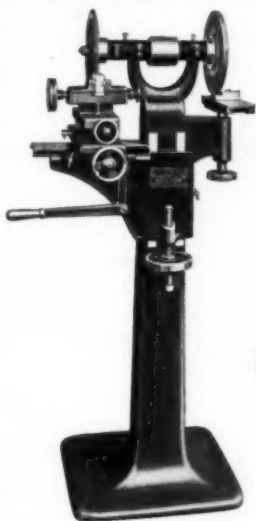
¶ The No. 555 carries 18x3 emery wheels, and is built for extra heavy work. Net weight is 1,160 lbs.

¶ The patented heavy steel guards are adjustable. The machine is equipped with attachments to connect with blower system. No. 555 is safe, efficient and durable.

Your request will bring details and price

E.O. PARTRIDGE, 2047-9W. Lake St., CHICAGO

The Geometric



**Chaser
or
Die
Grinder**

**For Accurate and Quick
Grinding of Chasers**

No screw-cutting tool can be successfully
operated without proper grinding.

Send for Descriptive Booklet

The Geometric Tool Company
New Haven, Conn.

A Cutter Grinder With Unusual Capabilities

For Sharpening All Sorts Of Cutters



The Flint No. 2

Does things others won't do. It sharpens gear cutters from 2-pitch to the smallest, all formed cutters used for tap and reamer fluting, twist drills, etc., sprocket wheel, concave, convex, angular, corner rounding and many other kinds of cutters, including stocking cutters and gear cutters notched on both sides. All these are easily and perfectly sharpened without the use of attachments, which are always time-wasters and trouble makers. The changes required for different cutters are quickly and easily made.

Highly efficient for sharpening screw-cutting die chasers, and for a variety of work besides cutter grinding. With a simple attachment it sharpens slitting saws up to 8-inches diameter.

We have successfully solved some hard problems by adapting this machine to special work ordinary cutter grinders cannot do. If you have one, take it up with us.

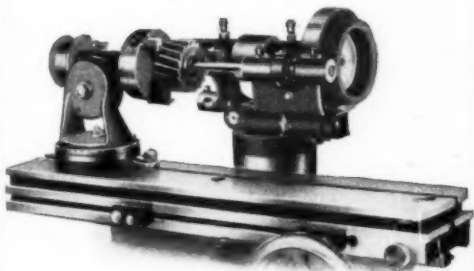
*We Have An Interesting Price
For This Very Interesting Machine.*

The Flint Specialty Company
No. 16 Waltham Street, Boston, Mass.

Odd Jobs of Internal Grinding

are easily and accurately done on the

Greenfield



The Internal Attachment here shown will handle a multitude of small jobs just as efficiently as a much higher priced machine. The Internal Spindle is driven by friction giving a smoother drive than by belt.

The 4-inch Chuck with reversible jaws is mounted on a fixture with graduated swivels which, in connection with the screw adjustment of the Table, permits of the very finest settings.

The whole rig can be accurately set up in a few moments and will produce work that will bear the closest inspection.

Greenfield Machine Company
Greenfield, Mass., U. S. A.

Reduce The Cost On That Job

Our cost-reducing specialties have helped others to do better work in less time. Send us B-P of the work that is bothering you, and let us figure it out for you. We will tell you what tools to use, how to use them, and will send them on approval. Our specialties cover a wide range of metal-working operations, and we want to make you a permanent customer by demonstrating our ability to save money for you.

ESTIMATES

PRODUCTION

DEMONSTRATIONS

SPECIALISTS



J. R. STONE TOOL & SUPPLY CO.
Efficiency Guaranteed
DETROIT, U.S.A.
MICHIGAN

Send B-P today

J. R. STONE
TOOL & SUPPLY CO.
24 Goebel Bldg.,
Detroit, Michigan



Grant Riveters are Grand Riveters

They combine more good qualities than any other Riveter made.

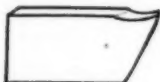
- (1) *Noiseless.*
- (2) Turn out highly polished rivet heads.
- (3) Do away entirely with broken castings.
- (4) Will not injure surface of articles riveted.
- (5) Will rivet tight or loose as desired.
- (6) "A rivet a second."

Don't these reasons form an urgent enough invitation for you to let us send you more information? Belt and Motor Driven up to 10" capacity.

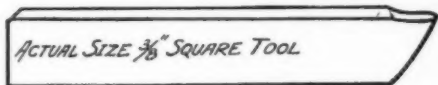
The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

This Stellite Tool

Turned off 4,370 lbs. of Cast Iron



or 33,000 times its own weight
of metal in 20 days



The tool cost 60 cents.

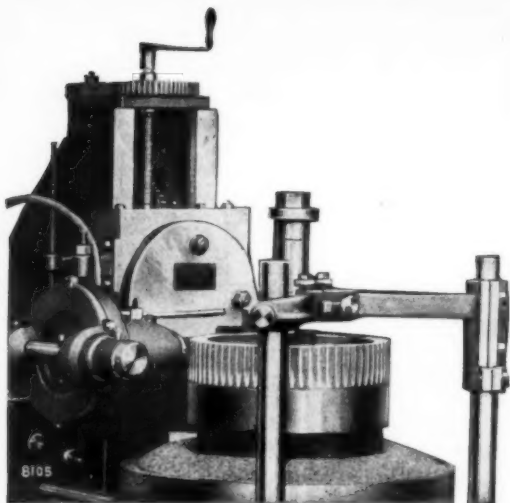
It earned a net profit over a
steel tool of \$41.80.

The above is not simply a **claim**,
but a **certified record from actual
practice.**

Sample tool $\frac{3}{8}$ inch square by
 $2\frac{1}{2}$ inches long, post paid, 75 cents.

Send for full information

Haynes Stellite Works
Kokomo, Ind.



The Farwell is a Heavy Duty Hobber

To get the maximum output on spur gears you need a stiffer hob spindle support than is possible on a spiral hobber—

In cutting spur gears there is no side strain to consider and you can hog off the metal as fast as high speed steel will stand, if the hob spindle is stiff enough. Farwell Hobbers are the only ones built in two types—a Universal Machine for spirals and a Plain Heavy Duty Machine for spurs and worm wheels.

Ask for circular No. 805-H.

The Adams Co., 970 Hamilton Street,
Dubuque, Ia., U. S. A.

Putting It Up to the Hob

If greater speed is to be developed in the production of spur and spiral gears, it must be done by extending the cutting capacity of the hob.

The **B-C No. 12 Hobbing Machine**

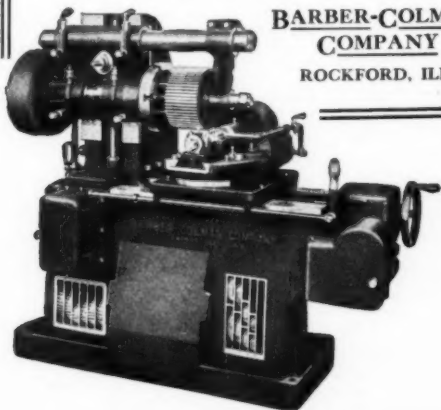
Will take without chatter any cut a modern hob can stand.

The machine is extra heavy and compact, with weight carefully and properly distributed. The bed and column are of rigid box section. The hob slide is close to the solid bed. The work sets close to the spindle bearings in the work slide. This construction makes for maximum stiffness.

The control handles are on one side. No time-waste in operating. The hob slide is mounted on horizontal ways. No time-waste in setting. The work arbor is horizontal. No time-waste in loading and unloading.

If you produce spur or spiral gears in quantities, we can give you pertinent figures on your work. Send sample or blue print. Ask for the Hobbing Bulletin.

**BARBER-COLMAN
COMPANY**
ROCKFORD, ILL.



Latest Improved Soda

For Quickly Cleaning Surfaces
Safe---Convenient---Effective



Made in Two Sizes

The No. 1 has a capacity of 10 gallons
" No. 2 " " " " 30 "

For full information in reference to these machines

The Gray & Prior Machine Company

Soda and Potash Kettles

Doing Small Machine Parts

Cheaper than Gasoline

Boiling lye is better and cheaper than gasoline for removing grease, oil and chips from newly-made machine parts, and it is the only safe process. With our

Improved Kettles

small parts are handled rapidly, and thoroughly cleaned for case-hardening or assembling, with less trouble and at less expense than the work can be done in any other way. Heated with a Bunsen gas burner or blue-flame kerosene burner, they can be moved and used anywhere. Cheaper to operate and buy than steam kettles, as they have no costly traps, drains and fittings.

We can make immediate shipment

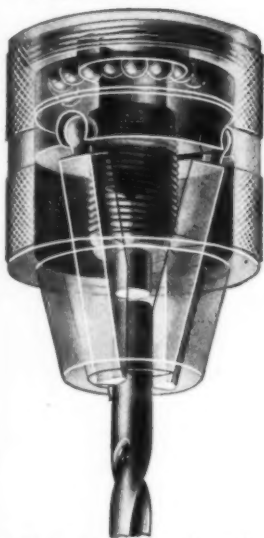
to these money-saving conveniences, write to

the Company, Hartford, Conn.

The New Britain Drill Chuck

Hand Operated

Ball Bearing



This Chuck needs no wrench to operate it. In fact there is no provision made for a wrench excepting in the largest sizes, and it is not necessary to use the entire hand to bring the jaws down tight on the drill.

The Chuck is **self tightening**, and may be operated by thumb and forefinger.

Just bring the jaws down on the drill sufficiently to keep it from dropping out, **and then start drilling.** The harder the pressure on the drill, the tighter the grip of the jaws. **And it releases just as easily.**

Let us demonstrate it to you.

Union Manufacturing Co.

New York Office
26 Cortlandt St.

New Britain, Conn.

Makers of a Complete Line of Chucks

Remember When Ordering Cutters

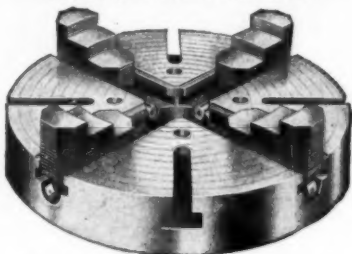
That all B. & S. Formed Cutters are reproduced from steel point drawings on zinc —**the most accurate method known.** Accuracy in formed cutters is positively essential and we spare no means to produce it.

Let us send you a cutter catalogue for your files.

Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.

B&S

The Solving of Chucking Problems Is Our Special Line of Work



There is a Sweetland Chuck for All Your Chuck Needs
Just tell your chucking troubles to
THE HOGGSON & PETTIS MFG. CO., New Haven, Conn.



Burke Quality Excels on Fine Points

Machines of
Burke Quality
are never built
with any name
cast on the
frame but our
own—

**BURKE
CONNEAUT
U. S. A.**

For Sale Everywhere



**"The Chuck that never slips
The more you crowd it, the tighter it grips."**

No keys or spanners to get mislaid or lost; one hand works it, both ways.

It tightens itself; crowding only strengthens its grip; the drill can neither slip nor wobble.

Ball Bearings make release quick and easy, saving time and drills.

Shank forms part of chuck—a valuable feature.

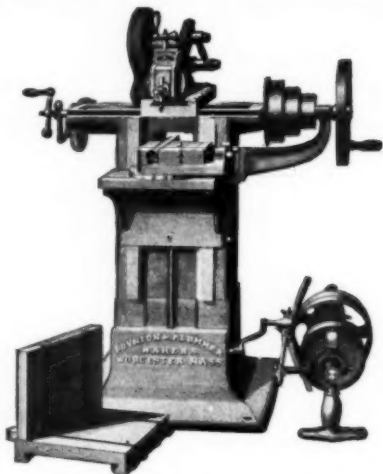
The Coit Drill Chuck is one of those little time and trouble savers that pay dividends out of all proportion to their cost.

Like to try one? Let us know.

Narragansett Machine Co.
Providence, Rhode Island

**We also manufacture Semi-Universal Grinding Machines,
Disc Grinders and Steel Lockers.**

SPECIAL 6x9 Shaper, 14-in. traverse,
with swivel and plain chucks
that take work full length of
traverse, and countershaft. **\$160**



**6x9, 8x12 and 10x15-Inch
Improved Shaping Machines**

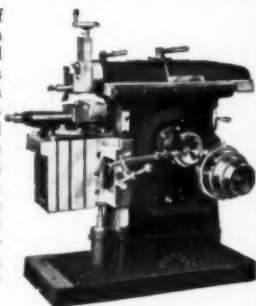
The capacity of our improved machines has been increased. The feed is automatic and reversible. The cutter-bar has a graduated swivel head. They will prove particularly profitable where much short work is now being done by filing and planing, often saving the room and expense of a large planer. A large opening in the machine permits the insertion of long work, such as shafts for keyseating, etc.

*Write for Shaper Catalog, also separate Catalog of Post
Drills, Bolt Cutters, Bending Machinery and Nut Tappers.*

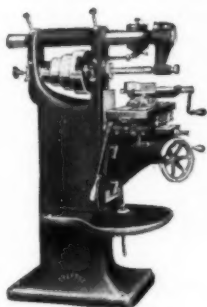
**Boynton & Plummer, Inc.,
Worcester, Mass.**

The Way to Make Money

is to save it in the cost of your work—and you can cut the cost of the small parts you are doing on a planer by putting them on a **Step toe Shaper**. Relieve your planers of small work and you will have more room on your planers and do the work in from one-third to one-half the time on a shaper. Step toe shapers, on account of their many time-saving features will do the work quicker than any other shaper.



Step toe Hand Millers



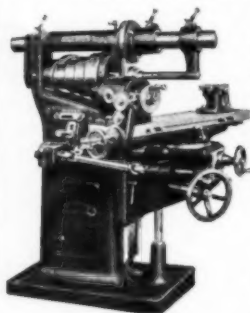
are much heavier than other millers of this type, and are, therefore, capable of taking a heavier cut with accuracy. They will keyseat your shafts quicker and at less cost than any other machine, and mill your small parts quicker than a power miller.

The John Steptoe Company

Station B., Cincinnati, Ohio, U. S. A.

Rockford No. 2 Universal

16 Speed Changes. Positive Drive through Gears.
Working Surface of Table 38"x9"



This Modern Miller

has our Patented Flange Support to the Overhanging Arm, bolted to seat of column, which insures unusual stiffness in heavy work. This so reduces vibration that heavy cuts are taken with great accuracy. The construction throughout is of the Rockford standard of excellence.

We make others. Put your milling problems up to us.

Rockford Milling Mch. Co.
Rockford, Ill.

Designed For Manufacturing

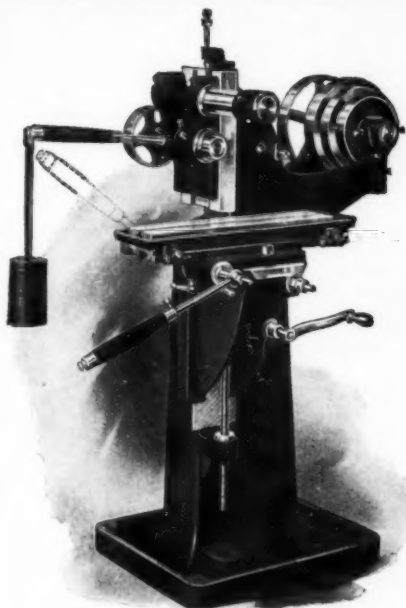


But built good enough for the Tool Room. If you have any doubt about it, just try one. Our two-speed Friction Counter and plain Index Center help you to do the trick.

Send for circular

The Carter & Hakes Co.
West Winsted, Conn., U. S. A.

AGENTS—Marshall & Huschart Mchry. Co., Chicago, St. Louis, Indianapolis; Mott & Merryweather Mchry. Co., Cleveland, Detroit, Cincinnati, Pittsburg.



"Whitney"
Hand & Weight(feed) Milling Machine

For Cam Cutting, Gear Cutting, Key Seating, Profiling, Slabbing, Slotting, etc., this machine is the handiest, most adaptable, and most efficient on the market.

Catalog No. 10 gives full particulars

The Whitney Mfg. Co.

233 Hamilton St., Hartford, Conn.



Burke's No. 3 Bench Millers

Are Seasoned Tools

Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.;
traverse feed, $3\frac{1}{2}$ in.; vertical
motion of knee, $8\frac{1}{2}$ in.; table
surface, $3\frac{1}{2}$ x 12 inch.

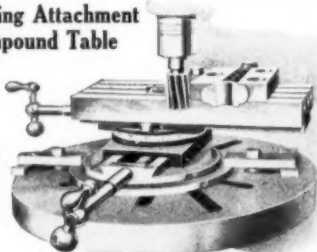
Write for Catalog, which also shows larger and smaller sizes.

The Burke Machine Tool Co.
Conneaut, Ohio

See How Easily Attached

Davis Milling Attachment and Compound Table

For the
Diemaker
Patternmaker
Repair Shop
Garage, etc.



Converts any drill press from 14 to 42-in. swing, into a first-class vertical milling machine in 2 minutes. Does 90% of the lighter jobs as well as a \$1,000 machine. Cuts keyseats perfectly, mills deep grooves or slots, cuts clutch jaws and mills cams, etc. A small price buys this big economy.

Hinckley Machine Works, HINCKLEY,
ILL.



The Bristol No. 2 Heavy Hand Miller

Compared with any other hand milling machine on the market, the Bristol No. 2 has—

- greater power, capacity and range;
- greater rigidity, with better knee support;
- more milling machine value per dollar of cost.

In size, productiveness, stability, accuracy and convenience; in its bearings, adjustments, oiling system and general design, the Bristol No. 2 marks a distinct advance in hand miller construction, offering, we believe, not only the most for the price, but the most at any price. Furnished either with or without power feed.

*This is only a hint at its general excellence
Glad to receive your permission to tell the whole story*

The C. G. Garrigus Machine Co.
Factory and Main Office, Bristol, Conn.
 New York Office, 30 Church Street

A High Speed Saw In Fact The Marvel No. 4

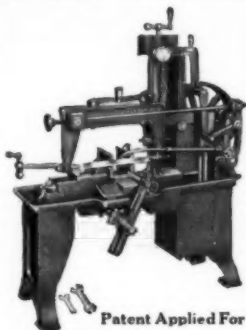
Cuts 6-in. round cold rolled steel in 10 minutes; smaller sizes in proportion.

Cuts on draw stroke only, with a smooth, even movement, and with quick return.

A strictly high-grade tool, improved right up to the minute—the kind that it pays to buy.

In cutting speed, accuracy and convenience it is a "Marvel."

Write for complete description

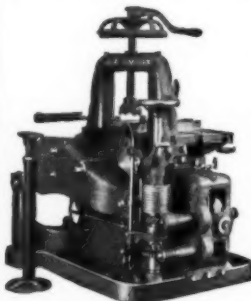


Patent Applied For

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave.
CHICAGO, ILL.

THE SIMPLEX

Cold Cutting - Off Saw



Cuts quicker and cheaper

Rounds	Beams
Squares	Rails
Angles	Ingots
Channels	

Built in Four Sizes, with
Belt or Motor Drive

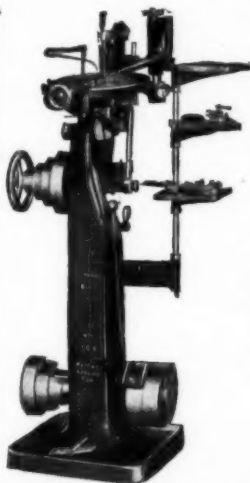
Ask for Bulletin D.

Lea Equipment Co., Philadelphia
Penna.
Operated by the Earle Gear & Machine Co.

Save Work

With the Cochrane-Bly Filing Machines

Besides a lot of time and money



No. 2 Filing Machine

Several Government Arsenals use these machines, and they are considered indispensable in the hundreds of factories, tool rooms and machine shops in which they have been installed.

Accurate filing by hand is difficult for the expert; with this machine it is easy for the novice. The machine is also much quicker, hence accomplishes more at less cost. For dies, metal patterns, jigs, small tools and tool room work generally, its great economy practically compels consideration. Also does metal jig-sawing, lapping, etc. Table is adjustable. Screw feed for the work is provided, and by replacing the file with a hack saw, the machine will saw out dies so closely that but little filing is needed to finish them.



Bench Filing Machine

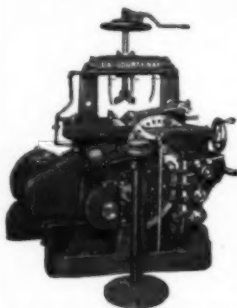
Limited space forbids telling all it will do. Send for Booklet and get posted on this big economizer.

Cochrane-Bly Company

Rochester, N. Y., U. S. A.

Also Cold Saws and Automatic Cold Saw Sharpeners

Lea-Courtenay



The Lea-Courtenay line of cold metal saws embody several strictly new features well worth investigating by interested parties—one of them described in the chapter entitled "Effective Cutting Range." Our No. 15 machine carrying a 15-inch blade will cut a 5½-inch round bar or a 10-inch I beam.

Machines in stock for immediate shipment.

Get posted on the best saw

LEA-COURTENAY COMPANY, Inc.
90 West Street, New York

A 12 Inch Saw, \$125.

Screw Feed and Ball Bearing Thrust

Cuts 3x5 or
1-2x9 inch.

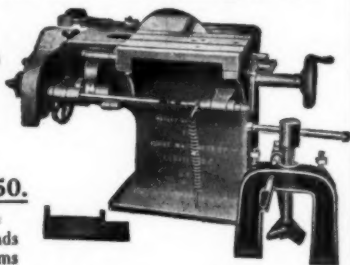
Power Friction
Feed.

Automatic
Knockout.

Large Clamp-
ing Table.

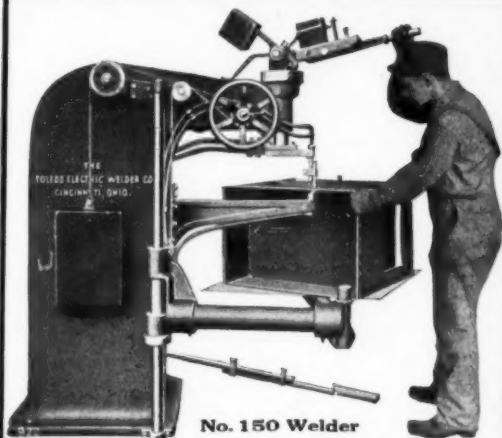
20-in., \$250.

CAPACITY:
5½ Inch Rounds
12 Inch I Beams



Write for full particulars; they're interesting

The Burke Machine Tool Co.
Conneaut, Ohio



No. 150 Welder

Riveting Costs Reduced From 60% to 95%

It's the electric way

SEND US A SAMPLE of the work you are riveting. We will weld it and return to you free. Then go at it with a sledge hammer and pound it. Don't be afraid of breaking anything except the hammer. Then find out how little it costs to do the work and decide whether you can afford to do without a welder.

BUTT WELDERS? Weld anything that's weldable. Over 30 different kinds to select from, and one welder will do the work of 10 blacksmiths. If you have any welding to do, let us tell you about them.

No Lease

No License

No Royalty

The Toledo Electric Welder Company

Station A, Cincinnati, Ohio

Felts

all grades for the machine tool trade cut to order into washers, gaskets, strips or any other shape. Write for samples and prices and send blue print or sketch of exactly what is required.

N. E. BOOTH

642-644 Pacific Street, Brooklyn, N. Y.



Vulcanized Fibre

For Machine Parts

INVESTIGATE — TODAY — its low cost and high efficiency for your machine parts. You will find it both better and cheaper.

Let us figure on these parts for your machines:

Gears
Frictions
Washers

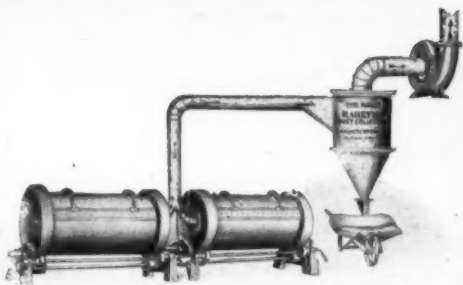
Bushings
Thrust Washers
Guide Collars

Discs
Handles
Etc., Etc.

Or send us blue prints or samples of special parts.

Write for Catalog, which tells the story of the original Vulcanized Fibre and its uses, and contains price list on stock parts, sheets, tubes and rods.

American Vulcanized Fibre Co., Wilmington, Delaware.



No Repairs in 3 Years

and still in good running order is the profitable record of the Morse "Rarefied"

And was it light, soft dust that made this possible? Not a bit of it. During these three years they were busy collecting the hard, heavy dust raised by emery wheels, sand blasts and tumbling mills. When the "Rarefied" is used for this class of work it is built all iron, instead of regular mill construction.

We urge you to investigate the "Rarefied" because it is a better collector, and more economical to operate.

Ask for our booklet—it explains.

The Knickerbocker Company
Jackson, Mich.



Cut Down That Overhead

Increase your profits by decreasing your losses. Learn the actual cost of operations and production on Stamping Presses, Punches, Screw Machines, etc., by installing

Durant Counters

The largest and brightest figures—easiest reset—accurately built. Our broad line contains the right machine for your needs. We will send one or more on thirty days' trial. Test them out for yourself.

"They Pay Their Way"

THE W. N. DURANT CO., Milwaukee, Wis.

Allen Safety Set Screws



Send for circular No. 13 and sample screws (for testing).

ALLEN MFG. CO., - Hartford, Conn.

Put New Life Into Your Machines

You can readily do it by making it easy to change the speeds to suit the work and by backing up the right speeds with ample power. The simplest and surest way to get these results is by applying

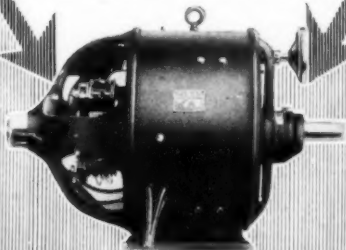
Reliance Adjustable Speed Motors

To get any speed just turn the hand wheel. The running speeds are unlimited over any range up to 1 to 10. The motors develop full power and will carry heavy overloads at all speeds. They have just the features you need to put new life into your machines and make them turn out more work.

For details write for Folder 10-L

(We also build constant speed motors.)

Reliance Electric & Engineering Co.
1050 Ivanhoe Rd., Cleveland, Ohio

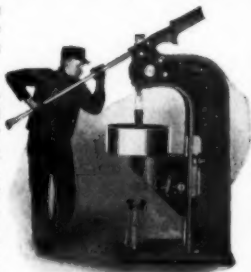


Eames Presses Make Good

They are powerful, accurate and serviceable tools, built to give the maximum service under all conditions.

Our business is being built up upon the performance and merit of our product. For driving mandrels, pressing bushings, pins, broaching, etc., the Eames Press is the most economical & best way.

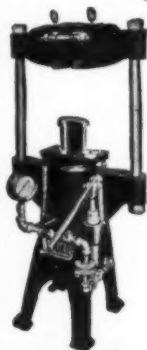
Let us send you a press on approval. Write for information or take it up with your machinery dealer.



The G. T. Eames Company

412 Oakland Drive, Kalamazoo, Mich.

Lourie Manufacturing Co. Springfield, Ill.



Type "B"

Make many styles and sizes of
Vertical and Horizontal
**Hydraulic Forcing
Presses**

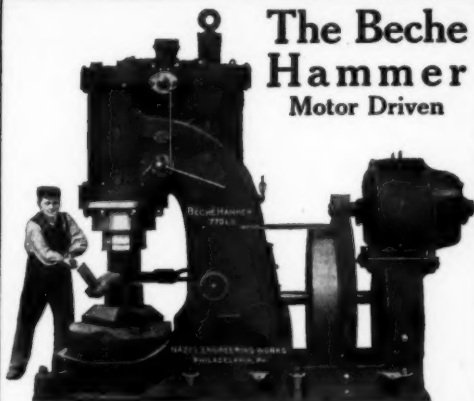
Hand or Power

Write for
Circulars
and
Prices



The Beche Hammer

Motor Driven



The Heaviest, Most Powerful, Efficient and Economical Hammer of Its Size on the Market.

Hammer and Compressor Combined, No Piston Rods, Springs, Straps or Cushions.

Simple—Durable—Reliable

Powerful, non-bounding, squeezing blow. Positive, flexible control. Long stroke. Variable blows at will. No adjustments. Dies at any angle. Belt drive, no countershaft. Motor drive, geared direct.

Sizes and Efficient Capacities of Beche Hammers

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
2" dia.	4" dia.	5" dia.	7" dia.	8" dia.	9" dia.

Write for Catalogue and Prices

Nazel Engineering & Machine Works

Sole Builders for United States and Canada

5th and Luzerne Sts. - - Philadelphia, Pa.

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels

" No. 0 32 " "

" No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table

" No. 9 Tilting Table

" No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.

12, 16, 20, 24 and 30 in., 7 ft. tables and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

Steel Die

Embossed Stationery

looks like solid prosperity. The psychology of creating a favorable impression by mail must necessarily include impressive stationery—neither cheap nor showy—just neat and rich. For that purpose our Steel Die Embossed Stationery is unsurpassed.

It is probably not as expensive as you think

Ask for free Specimen Book and Prices

American Embossing Co.

192-96 Seneca St.,

Buffalo, N. Y.

Greenerd Arbor Presses



Are made
in many
styles and
sizes, from
the little
15-pound
No. 1 to
the No. 15
which gives
a pressure
ranging up
to 16 tons

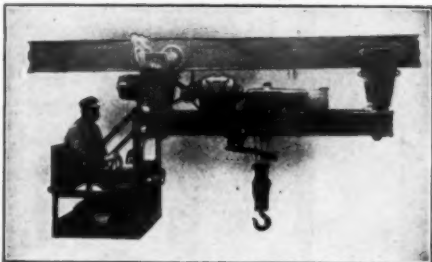
Removing gears from an automobile transmission countershaft is easy. Twelve-inch diameters will go under plate. By taking out the bottom plate and placing the press over an opening in the floor, automobile fly wheels can be removed. Automobile rear shafts can also be quickly straightened on the No. 15 Greenerd Arbor Press, with which one man gets a pressure of 10 tons; two men, up to 16 tons. Wonderfully handy in repair shops.

Ask your dealer or write for full information to

Edwin E. Bartlett,

**336 A Street
Boston, U. S. A.**

Mono Rail Hoists and Over Head Track Systems



A 5-ton hoist operated from cab or floor for transferring material from one building to another, unloading cars, general yard work, etc. Mono Rail Hoists and trolleys of all types.

Nothing too large or too small for our careful, prompt attention

The Euclid Crane & Hoist Company
Euclid, Ohio

LEIMAN BROS.



Positive High Pressure

Blowers
and
Vacuum
Pumps

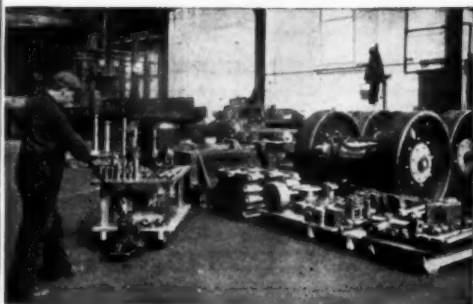
**They Take Up
Their Own Wear**

Used for furnaces, blow-pipes, etc., for intensifying the heat. Also for sand blasting, special machinery of all kinds and

Vacuum Cleaning

LEIMAN BROS. 62 John St.,
NEW YORK

The Cowan Ball Bearing All-Metal Transveyor Practically Indestructible



**In the Plant of Waterbury Farrel Foundry & Machine Co.
Eliminating expensive trips of the overhead crane**

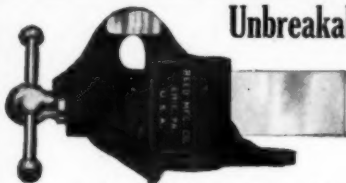
One Transveyor and a hundred 75-cent wooden platforms take the place of a hundred ten-dollar trucks, and they will save you

**50 per cent of your trucking costs
30 per cent of your storage space
30 per cent of your handling time
75 per cent of your store room labor**

Our literature explains the splendid all-metal construction of the Cowan Transveyor, tells how to make the platforms, how to store to save space and rehandling—in fact, it gives many economy hints that should be in the hands of every factory owner who wishes to save time, space and labor, to improve his system of stock keeping and to make his factory more orderly.

This information is yours for the asking

Cowan Truck Co., 75 Water St., Holyoke, Mass.



Unbreakable Vises

In any combination of stationary or swivel jaw or base.

Because designed only after repeated breaking tests

Once there was a boy who soon tore a hole in every new pair of pants, and his mother finally made him a pair of leather. Thereupon his first act was to climb up on a fence, get caught on a nail and hang there until rescued. The leather held, but it did get a puncture.

If that boy is alive today, he *might* break one of these vises, but nobody else could, without a sledge hammer and malice aforethought.

They are guaranteed against breakage, and the machine finish to all surfaces keeps them from getting loose jointed from long usage.

We have valuable vise pointers. Will you write for them?

REED MANUFACTURING CO., - Erie, Pa.

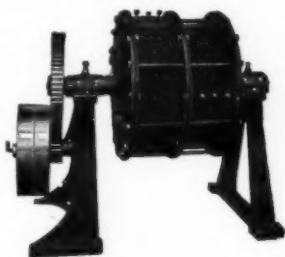
Machine Tool Makers

should investigate carefully the facilities offered by **Hitchcock's Machine Tool List** for reaching this trade in all parts of the country. Its circulation is specialized to completely cover *every line of manufacture* in which machine tools are used—as well as all railroad and other tool-using shops—with a thoroughness and effectiveness not equalled by any other advertising medium.

A Horizontal Cost Reduction

In Burnishing Small Metal Parts

No, we are not offering you a method of just ordinary cost reduction, but a reduction so great that it makes the hand buffing of small parts look like assault and battery upon your pocket-book. Users of the Abbott Process are today saving from 75 cents to 99 cents out of every dollar, compared with what buffing used to cost them. Just think of it.



The Abbott Burnishing Barrel

polishes by the peck or the bushel, at a labor cost of about **five cents** for each load. And, what is equally to the point, **it does better work**. It burnishes to a hard, smooth, glossy finish, without removing any of the material. It does not break or bend the parts. In fact, the Abbott Process means an almost unbelievable economy plus high efficiency.

*Write for booklet and special trial offer
And send samples for time and cost estimates*

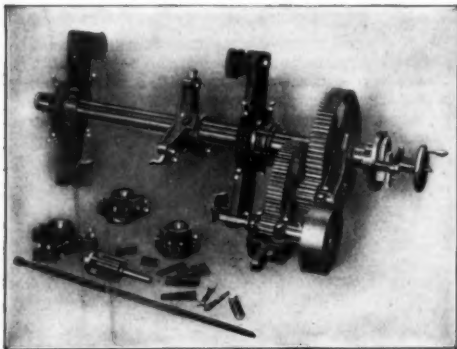
The Abbott Ball Company

Elmwood District

Hartford, Conn.

Leave Them In Position

Put Underwood's Portable Boring Bar
on the job and save time and money



BORING ALL KINDS of engines, steam hammers, pumps, air compressors, Corliss valves, etc., *in place*, you can readily see the substantial saving this handy tool puts within your reach.

It does reliable work in very cramped places, and in all positions. Cylinders are rebored in place in less time than they could be removed from fixed position, leaving all steam connections and bolts intact. Railway repair shops find this tool especially adapted for the boring of locomotive cylinders. Made in several sizes and powerfully geared. Hand or power driven.

You are missing some big economies while without Portable Tools. Send for our catalog today.

H. B. Underwood & Company

Established 1870

1016-1022 Buttonwood St., Philadelphia, Pa.

Second-Hand Machinery.

Lists of second-hand machinery, either for sale or wanted, will be published under this heading at the rate of **40 cents a line**, across the page, each issue, with a minimum charge of **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for.

Write directly to the parties offering the machines for sale for prices and full descriptions. If you do not find what you require, use the slip inclosed with each book to make known your wants to the publisher.

FOR SALE BY

Vonnegut Machinery Co., 51 S. Meridian St., Indianapolis, Ind.

TURRET LATHES AND SCREW MACHINES.

24x8 Lodge & Shipley, power feed. 16" Acme, hand feed.
18x6 Lodge & Shipley, power feed.

DRILL PRESSES.

2-spindle style A Barr. 5-spindle style A Barr.
4-spindle style A Barr.

MILLING MACHINES.

No. 12 Pratt & W., Lincoln type. No. 2 Garvin, duplex.
No. 6 Whitney, hand miller

AUTOMATICS AND GEAR CUTTERS.

14"x15" Cleveland. 24" Becker-Brainard gear cutter.
No. 1 Gould & Eberhardt hobber. 36" Becker-Brainard gear cutter.
22" Gould & Eberhardt gear cutter.

GRINDERS.

No. 23 Brown & Sharpe, cylinder. No. 22 Landis, plain.
No. 200 Heald ring grinder. No. 23 Landis, plain.
No. 210 Heald ring grinder. No. 10-B Besly, disc.
No. 14 Landis internal grinder. 18" Gorton, disc.

LARGER MACHINES.

36"x36"x12' Niles planer. 30"x20' Niles lathe.
We also have an assortment of small lathes, ranging from 9" to 18" swing.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

210-212 Washington Ave.,

St. Louis, Mo.

LATHES.

14"x12" Lodge & Davis. 20"x 8' Whitcomb-Blaisdell.
16"x 6' Pratt & Whitney. 21"x 9' Lodge & Davis.
16"x 6' F. E. Reed. 28"x16" Flather.
16"x 6' Hamilton. 32"x10' Bradford.
17"x 8' Greaves & Klusman. Fitchburg Lo-Swing.

PLANERS.

24"x24"x6' Gray. 36"x36"x8' Hamilton.
24"x24"x8' American. 44"x44"x14' Niles.

DRILLING MACHINES.

20" Barnes drill. 36" arm Bickford radial.

BORING MILLS AND BORING MACHINES.

36" vertical, two heads. No. 1 Barret, horizontal borer.
6" Niles, one head. 72" Niles horizontal cylinder borer.

AIR COMPRESSORS.

6x6 belted. 600' steam driven.
8x8 belted. 500' motor-driven.
8x8x8 steam driven. 650' motor-driven.
10x10x10 steam driven.

TRAVELING CRANES.

40' span 23-ton electric, 220 v., d.c. 50' span 10-ton electric, 220 v., d.c.

MISCELLANEOUS.

Bulldozer, No. 4 Williams-White. Miller, plain, No. 34 Fox.
Grinder, No. 16 Brown & Sharpe, Pipe machine, 4" Borden.
automatic. Screw mch., 3" P. & W. automatic.
Grinder, 19"x72" Landis. Screw machine, hand, 1" P. & W.
Hydraulic jack, 50 ton. Shear, splitting, 50" throat.

SECOND-HAND MACHINERY.

FOR SALE BY

**The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago
610 Merrill Building, Milwaukee, Wis.**

LATHES.

- | | |
|---|---------------------------------|
| 14"x6' Hendey, pan bed, draw spindle, taper att., tool room outfit. | 19"x8' Reed, compound rest. |
| 14"x6' Prentice, geared head. | 20"x10' American, q. c. g. |
| 14"x6' LeBlond, compound rest. | 24"x14' Bradford. |
| 16"x6' Lodge & Shipley. | 36"x12' Bradford. |
| 16"x7' Blaisdell, comp. r. and taper. | 30"x12' Flather, compound rest. |
| 18"x8' Fairbanks, c. r. and taper. | 32"x14' Putnam, compound rest. |
| 18"x10' American, q. c. g. | 32"x18' Pittsburg, d. b. g. |
| | 49"x18' Fifield, with chuck. |

SHAPERS.

- | | |
|------------------------------------|---------------------------------|
| 6" Boynton & Plummer. | 20" Gould & Eberhardt. |
| 9" Pratt & Whitney, crank. | 24" Milwaukee, A1. |
| 16" Gould & Eberhard, b. g. crank. | 26" Putnam, geared, belt shift. |
| 16" Davis & Egan. | 24" Gould & Eberhardt. |

PLANERS.

- | | |
|---|-------------------------------------|
| 22x22x5 Whitcomb, good order. | 36x36x12 Gray, 2 heads. |
| 24x24x5 Wilson. | 40x38x14 Putnam, old style, low pr. |
| 26x26x8 Whitcomb, (new, reduced price.) | 42x42x14 Detrick & H., open side. |
| 20x20x10 Flather, 3 heads. | 44x44x12 Pond, 2 heads. |

GRINDERS.

- | | |
|--------------------------------------|---|
| No. 1 Cincinnati, universal. | No. 2 Bath, universal. |
| No. 1 Morse plain, 2"x20". | No. 2 Brown & Sharpe, surface. |
| 16"x66" Landis. | No. 2 B. & S., surface, with Walker magnetic chuck. |
| No. 2 Norton, univ. cutter and tool. | |

MILLING MACHINES.

- | | |
|-------------------------------------|-------------------------------------|
| No. 0 Van Norman, duplex. | No. 2 Kempsmith plain, vert. head. |
| No. 3 $\frac{1}{2}$ Waltham, bench. | No. 2 B. & S. universal. |
| No. 6 Whitney hand miller. | No. 20 Oesterlein universal. |
| No. 5B Becker, vertical. | No. 5 Hendy, Lincoln pattern. |
| No. 13 Garvin, plain. | No. 4 Garvin single spdl. profiler. |

UPRIGHT AND RADIAL DRILLS.

- | | |
|-----------------------------------|--|
| 2' Fosdick, with tap. attach. | 18" Henry & Wright, ball bearing. |
| 4' Fosdick, with tap. attach. | Sellers double column drill, 72" between uprights. |
| 3' arm, Cincinnati, plain radial. | 42" Prentice Bros. |
| 4' arm, Baush post radial. | 25" Prentice Bros., sl. hd., b.g., p.f. |
| 5' arm Western universal radial. | |

POWER PRESSES AND PUNCHES.

- | | |
|--|---|
| No. 4 Consolidated inclinable. | No. 18 Bliss. |
| No. 3 Am. Can Co. inclinable. | No. 10 $\frac{1}{2}$ Badger, combination. |
| No. 2 Consolidated inclinable. | No. 44 E. Rudolph & K. arch press. |
| No. 1 Consolidated inclinable. | No. 3 Walsh. |
| No. 16C Consolidated straight sided, geared. | No. 430 McDonald dbl. cr. o. b. pr. |
| No. 5 Bliss fly wheel punch press. | Humphrey single end punch, 36 in. throat, cap. 1 $\frac{1}{2}$ " in 1". |
| No. 5-A Toledo, comb. geared. | Style "C" Cleveland single end punch & shear. |
| No. 3 $\frac{1}{2}$ Bliss toggle press. | No. 5 L. & A. sgl. end punch & shear. |
| No. 3 Bliss double crank press. | |

SCREW MACHINES AND TURRET MACHINES.

- | | |
|---|---|
| No. 2 Foster screw machine, with independent stops. | No. 51 National-Acme automatic. |
| 8x4 $\frac{1}{2}$ P. & W. new model sc. mach. | No. 00 B. & S. automatic. |
| No. 1 Garvin screw machine. | 4- $\frac{1}{2}$ " Cleveland automatic. |
| 14" Warner & Swasey. | 14" Turret Lathes, small sizes. |
| | 14" Brown & S. screw machine. |

BORING MILLS—VERTICAL AND HORIZONTAL.

- | | |
|---|-----------------------------|
| 76" Bullard, boring and turning. | 37" Niles, 2 heads. |
| 42" Bullard, 1 swivel hd., 1 tur. head. | 34" Colburn, swivel turret. |

GEAR CUTTING MACHINES.

- | | |
|-----------------------------------|--------------------------------|
| Reynolds hobbing machine. | 30" Flather, spur only. |
| 42" Gould & Eberhardt, spur only. | 36" Brown & Sharpe, spur only. |

SECOND-HAND MACHINERY

The H. A. Stocker Machinery Co.—Continued.

MISCELLANEOUS.

Bolt cutter, 6" Acme, dbl. rapid hd.	Cold saw, No. 4 Birdsboro, with 6 extra saws.
Bolt cutter, 6" Haberle dbl. head.	Cutting-off mch. 4" Hurlburt & R.
Bolt cutter, 1" Adams, dbl. head.	Hammer, drop 500 lb. Standard autc.
Bolt cutter, 1 1/2" Schlenker, sgl. hd.	Hammer, power, No. 2 Beaudry.
Bolt header, 1 1/2"	Hammer, steam, 100 lb. American.
Bulldozer, No. 5 Ajax.	Hammer, steam, 800 lb. Morgan.
Cold saw, No. 3 Cochrane & Bly.	

FOR SALE BY

W. L. Perkins Machinery Co.

30 Church St., New York

LATHES.

16"x 8' Reed, comp. rest, hol. spdl.	22"x12' Reed, comp. rest, hol. spdl.
18"x 8' Flather, comp. rest, hol. spdl.	24"x12' Niles, comp. rest, hol. spdl.
20"x10' Flather, comp. rest, hol. spdl.	32"x12' Fitchburg, compound rest.

MISCELLANEOUS.

Boring mill, vert., 30" Bullard tur. hd.	Punch and shear, No. 1 Long & Allstatter, 48" throat.
Brass turret lathe, 18x6 American.	Slab miller, 24x12 Bement.
Gear cutter, 22" G. & E. auto.	Turret lathe, 2x24 J. & L. set-over hd.
Miller, hand, No. 6 Whitney.	Turret lathe, 3x36 J. & L. set-over hd.
Miller plain, No. 4 B. & S.	
Miller, universal, No. 2 Cincinnati.	

FOR SALE BY

Chas. Molitor Machinery Co.,

215 S. Clinton St., Chicago, Ill.

Brakes and shears, 8' to 10'.	Lathe, 20"x10' American, q. c.
Broaching machine and tools.	Lathe, 20"x10' Springfield.
Draw presses, Bliss, Ferracute, (4).	Lathe, 20"x10' Walcott.
Drills, adjustable spindle, 4" and 5".	Lathe, 33"x12' Prentiss.
Drill chucks, \$5,000 worth, 5-32 to 1".	Planers, 6' to 12', (3).
Drop hammer.	Riveters and spinners, 1/2" to 3/4".
Fox turret lathes, (10).	Screw machines, 1/2" to 2", (10).
Grinders, universal, (3).	Screw machines, P. & W. 1/2"-1 1/2".
Keyseater and slotter.	Shapers, 14" to 32", (8).
Tinners' rollers, bolt and pipe threaders, single and double air compressors and riveters.	
Set box makers' machines, punches, shears, clippers, stitchers, etc.	
100 other iron, brass, tinners' and wood-working machines, motors, etc.	

FOR SALE BY

Badger-Packard Mch. Co., 74-76 W. Water St., Milwaukee, Wis.

LATHES.

11"x5' Seneca Falls lathe.....	\$ 150.
11"x5' Star lathe, with chuck.....	140.
13"x6' Blaisdell, solid spindle.....	165.
14"x6' Flather, hollow spindle.....	200.
20"x12' American, hollow spindle and chuck.....	375.
24"x12' Aldrich & Calver.....	200.
30"x10' not screw cutting.....	200.

MISCELLANEOUS.

Pipe machine, No. 8 Merrell.....	275.
Screw machine, 1 1/2" Pratt & Whitney automatic.....	375.
Screw machine, 1 1/2" Cleveland automatic.....	300.
Screw machine, 1" Dreses, complete, nearly new.....	275.
Shaper, 16" American, back geared, nearly new.....	300.
Shaper, 20" Springfield, nearly new.....	325.

SECOND-HAND MACHINERY

FOR SALE BY

**C. C. Wormer Machinery Co., Dept. A., 97 Woodbridge St., W.,
Detroit, Mich.**

Wormer's Bargain List of Second-Hand and New Machines.

NEW MACHINES.

These New Machines are offered at bargain prices.

Bolt cutter, 1 1/2" Economic.
Drill, 20" Peerless, lever feed.
Drill, 20" Peerless, b. g. and p. f.
Gear hobber, No. 0 Farwell.
Grinder, disc, No. 6-A Diamond univ.
Grinder, disc, 18" Cook.
Hack saw, No. 4 Racine, high speed.
Lathe, 15"x6" Schellenbach, q. c.
Lathe, 16"x6" Hamilton, q. c.
Lathe, 21"x12" New Haven.
Lathe, 24"x14" Porter.
Lathe, spinning, 15" Frybail.
Miller, hand, No. 0 Farwell, q. c.
Press, No. 5 Perkins, Model I, grd.

Press, No. 12 Consolidated, deep throat, plain, 19" throat.
Press, No. 12 Michigan, deep throat, geared, 24" throat.
Press, No. 50 Perkins, model B., inclinable, geared.
Punch and shear, No. 3 Sutton, black-smith type.
Punch and shear, No. 4 Sutton dbl. end, geared, 18" throat.
Screw mche., 1 1/2" No. 140 Wells, pl. hd.
Shaper, crank, 16" Queen City, b. g.
Shaper, crank, 24" Walcott, b. g.
Shear, squaring, 52" Niagara, foot.

SECOND-HAND MACHINES.

LATHES.

14"x 6" Goddard, r. & f. rest, p. c. f., h. s.
15"x 6" Flather, comp. r., hol. apdl.
16"x 6" Blaisdell, c. r., h. s., taper att.
16"x10" Draper, c. r., h. s., taper att.
16"x 8" Am., q. c., c. r., p. c. f., h. s.
18"x 8" Lodge & D., pl. r., p. c. f., h. s.
18"x 8" Walcott & Wood, rebuilt c. r., p. c. f., h. s.
18"x 8" LeBlond, c. r., p. c. f., h. s.
18"x8" Hamilton q. c., geared head, c. r., p. c. f., h. s.
21"x11" Lodge & D., c. r., p. c. f., h. s.
22"x16" Putnam, plain turning.
60" Stevens pulley lathe.
12"x4" plain turning lathe.
25"x31"x14" LeBlond heavy duty crankshaft lathe, good as new.
12-Speed lathes, various sizes.

SCREW MACHINES.

No. 1 Garvin, pl. hd., 1" cap.
No. 0 Brown & S., pl. hd., 7-16 cap.
No. 2 Pratt & W., pl. hd., 21-32" cap.
Garvin, plain head, 13-16" cap.
Foster No. 3, geared fric. hd., 19-16" cap., p. f. to turret, p. f. to cut-off.
No. 4 Brown & S., pl. hd., 15-16" cap.

AUTOMATIC SCREW MCHS.

Cleveland 1 1/2", with slotting att.
Brown & Sharpe No. 2, 1 1/2".
Cleveland 1 1/2".
Cleveland 1 1/2".
Hartford No. 2, 1 1/2".

TURRET LATHES.

Foster 12"x3", plain head.
Jones & L., 14"x5" f. g. hd. p. f. turret.
H. & O., 15"x5", with univ. chasing att.
Star Tool Co., 20"x8" turret chucking.

TURRET LATHES—Cont.

Warner & Swasey 16x3", with auto. chuck, 13-32" cap.
Lodge & Davis 20"x7", b. g. turret chucking lathe, with p. f.
Gisholt 22" heavy turret, taper att.
Gisholt 24" big bore triple geared turret lathe, 6 1/2" hole.
Davis 24" turret lathe, f. g. head, power lever and cross tees.
American 15"x6" b. g. Fox turret.

DRILLS.

2, 3 & 4-spindle sensitive.
28" Snyder, sliding head.
31" Barnes, sliding head.
Single spindle sensitive.
No. 3 Moline, 8-spindle.
Natco, 10-spindle.

PLANERS.

20"x19"x4" 1/2" New Haven, one head.
22"x22"x5" Pond, one head.
24"x24"x6" Hendey, one head.
28"x28"x7" Fitchburg, one head.
30"x30"x14" 6" Miles, 2 rail heads.

MISCELLANEOUS.

Car wheel borer, 48" Bement.
Cold saw, No. 4 Cochrane-B., 5 1/2" cap.
Cold saw, No. 5 Cochrane-B., 6 1/2" cap.
Cold saw, Cochrane-Bly, 4 1/2" cap.
Cylinder borer, vertical, 4-spindle Foote-Burt.
Grinder, Landis crankshaft.
Hammer, steam, 700 lb. Bell.
Hammers, Bradley, var. sizes, (12).
Keyseater, No. 2 Mitts & Merrill.
Punch and shear, dbl. end, 30" throat.
Shaper, 26" American, geared, shifting belt.

Write for complete list. The above covers only a small part of our stock.

SECOND-HAND MACHINERY

FOR SALE BY

Rumely-Wachs Machinery Co., 121 N. Jefferson St., Chicago, Ill.

ENGINE LATHES.

16"x 6' Hamilton, q. c.	21"x10' Bradford.
16"x 8' American, q. c. with taper.	22"x10' Fifeid.
16"x 8' Prentiss.	22"x10' Blaisdell.
16"x 8' Von Wyck, q. c.	24"x10' Schumacher & Boye, q. c.
16"x 8' P. & W., q. c. tool room.	24"x24' Fifeid.
18"x 8' Reed.	26"x14' Fifeid, triple geared.
18"x 8' Hamilton.	36"x12' Schumacher & Boye.
19"x11' Lodge & Davis, taper.	36"x14' Fifeid.
20"x 9' Draper.	

Also large assortment of small Engine Lathes.

UPRIGHT DRILLS.

20" Davis.	31" Barnes, sliding head.
22" Lodge & Davis.	36" Foote-Burt, heavy duty.
22" Prentiss, sliding head.	40" Lodge & Davis, sliding head.
23" Rockford, taper.	24" Baker Bros. heavy duty, compound table.
28" Sibley & Ware, sliding head.	

Also large lot of Sensitive and Bench Drills.

RADIAL DRILLS.

3' Fosdick, plain.	4 1/2' Bickford, plain
4' Fosdick, plain.	5' Prentiss, plain.
4' Prentiss, plain.	

SHAPERS.

15" Hendy, friction.	16" Acme, b. g. crank.
16" Juengst, crank.	20" Cincinnati, b. g. crank.

PLANERS.

24"x24"x 6' Whitcomb.	36"x36"x 8' American, two heads.
26"x26"x 6' Flather.	36"x35"x15' Woodward & Powell
30"x30"x 8' Putnam.	frog and switch planer.
36"x36"x 8' Geneva.	

MILLING MACHINES.

No. 2 Brown & Sharpe, plain.	No. 2-A Becker, vertical.
No. 2 Kempsmith, plain.	No. 3 Becker, vertical.
No. 3 Kempsmith, plain.	No. 4 Becker, vertical.
No. 3 Cincinnati, plain.	No. 4-B Becker, vertical.
No. 3 Newton, plain.	

SCREW MACHINES.

No. 1 Brown & Sharpe semi auto.	1" Foster & Kimball.
No. 1 Garvin, 1/2".	No. 4 Bardons & Oliver, 1 1/2".
No. 2 Pratt & Whitney, 1/2".	No. 6 Warner & Swasey, 2 1/2".
No. 2 Bardons & Oliver.	1/2" Pratt & Whitney, full auto., (3).

TURRET LATHES.

No. 3 Bardons & O., Fox Monitor.	21" Gisholt.
2x24" Jones & Lamson, (2).	24" Conradson.
18"x 6' Lodge & Davis, (2).	25" Warner & Swasey.
18" Windsor.	

BORING MILLS.

42" Bullard, 2 heads.	42" Colburn, 2 heads.
-----------------------	-----------------------

PRESSES.

No. 18 Bliss, o. b. i.	No. 1 Horning press.
No. 19 Bliss, o. b. i.	No. 12-A Adiance, drawing.
No. 21 Bliss, o. b. i.	No. 2 Billings & Spencer, trimming.
No. 6 American, o. b. i.	

MISCELLANEOUS.

Arbor press, No. 4 Eames.	Keyseater, No. 3 Mitts & Merrill.
Gas engine, 6 h. p. Kneeland.	Keyseater, No. 3 Baker Bros.
Grinder, 10x50 Norton.	Pipe machine, 6" Saunders.
Hammer, 125 lb. Bradley.	Profiler, No. 4 Garvin.
Keyseater, No. 2 Mitts & Merrill.	Thread miller, 6x48 Pratt & Whitney.

Write for complete List just issued.

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company, . . . 111 Broadway, New York.
Located at Chicago, Boston and New York.

Send for Catalogue No. 18.

LATHES.

- | | |
|-------------------------------|--|
| 13x6 P. & W., r. & f., taper. | 28x12 Pond, compound rest. |
| 15x7 speed lathe. | 30x14 Niles, c. r. |
| 16x10 P. & W., r. & f. & t. | 32x12 Pond, compound rest. |
| 18x8 Davis, c. r. | 36x17 Pond, 220 v. motor drive, taper. |
| 18x6 Pond, turret tool post. | 40x16 Bement, b.g., not screw cutting. |
| 18x7 Pond, turret tool post. | 42x22 Niles, comp. r., tri. grd. |
| 19x8 Pond, compound rest. | 42x30 Putnam, comp. r., tri. grd. |
| 20x16 Flather, c. r. | 50"x39' Niles forge lathe, with raising blocks to swing 73°. |
| 22x12 Niles, with taper. | 44 in. P. & W. pulley lathe. |
| 22x22 Niles. | |
| 36x12 Pond, comp. rest. | |

SCREW MACHINES, TURRET LATHES, ETC.

- | | |
|--|---|
| 14"x18" New Model, P. & W. | 28 in. Milwaukee turret, 4 in. hol. sp. |
| No. 3, 2 15-16 in. Niles screw mche. | 4 in. Hartford automatic pin machine. |
| 2x24 Jones & Lamson. | 4 in. P. & W. automatic screw mach. |
| 2x26 P. & W. piston and piston ring equipment. | 4 in. P. & W. 2 sp. automatic screw machine. |
| 3"x36" new model P. & W. | 4 in. Acme old style 4-sp. automatic. |
| 21" Gisholt, turret. | 4 in. single turret Spencer automatic. |
| 24-27 Conradson semi-automatic turret, 2 3-16 in. hol. sp. | 21-32 in. No. 2 Brown & Sharpe automatic screw machine. |

BORING MACHINES.

- | | |
|--|--|
| 30 in. tur. hd. b. & t. mill, Colburn. | 10-16' Bement, 220 v., d. c., motor dr. |
| 37 in. Niles, b. & t., 2 heads. | 2 in. sp. Kelly hor. bor. and drill. |
| 5 ft. Niles, 2 heads. | 3 1/2 in. sp. Bement hor. bor. & drill. |
| 6 ft. Niles, 2 hds. 220 v., motor drive. | 4 in. sp. Niles, hor. bor. & drill. |
| 7 ft. Niles, 2 heads. | 4 in. spindle Niles, floor borer. |
| 8 ft. Niles, 2 heads. | 96 in. swing x 10 ft. centers bor. & facing; weight: about 43,000 lbs. |
| 10' Niles, 2 hds. 220 v., motor drive. | |
| 10-16 ft. Niles b. & t., 2 heads. | |

UPRIGHT AND SENSITIVE DRILLS.

- | | |
|--|--|
| 13 in. 1 sp. sensitive, motor d., 110 v. | 30 in. sli. head, Gould & Eberhardt. |
| 10 in. 3 sp. sensitive, Slate. | 36 in. sliding head, Gould & E. |
| 10 in. 3 sp. sensitive, Sigourney. | 36" Aurora, sliding head. |
| 14 in. 4 spindle, style A, Barr. | 3 sp. Niles rail drill, arrgd. for motor. |
| 18 in. 6 sp. E. Barr. | 4 spindle Bement, multiple, 11 ft. between housings. |
| 2 spindle dbl. column sen., Langelier. | No. 11 multiple drill, P. & W. |
| 17 in. 4 sp. gang, Jones & L. | 10 sp. adjustable R. & W., capacity |
| 20 in. No. 23 Foote Burt high duty. | 1 1/2 in. holes in 37 in. circles, belt or motor; weight: 30,000 pounds. |
| 20 in. Barnes, sq. base. | |
| 28" Aurora, sliding head. | |

RADIAL DRILLS.

- | | |
|------------------------------|-------------------------------------|
| 4 1/2 ft. semi-radial, Barr. | 5 ft. 6 in. universal, Niles. |
| 4 ft. Niles, plain. | 6 ft. 10 in. semi-universal, Niles. |
| 4 ft. Niles, univ. | 7 ft. 6 in. full universal, Niles. |
| 5 ft. Niles, plain. | Univ. portable radial, Prentice. |
| 5 ft. plain, motor, Pond. | |

MILLERS AND GEAR CUTTERS.

- | | |
|---|--------------------------------|
| No. 1 Duplex Van Norman. | 6x14 thread miller, P. & W. |
| 24x7 table, plain, Becker. | 6x80 thread miller, P. & W. |
| No. 1 B. & S. plain, late model. | 36" spur and bevel, Gould & E. |
| 43x9 1/2 No. 3 Cincinnati plain, b. g. | 36 in. spur gears, Pond. |
| No. 13 single spindle new model profiler, P. & W. | 72 in. spur gears, Niles. |

SHAPERS AND SLOTTERS.

- | | |
|---|---------------------------------------|
| 10 in. crank shaper, P. & W. | 18 in. double trav. head, Cincinnati. |
| 10 in. crank shaper, Niles. | 32 in. triple grd. rack, Cincinnati. |
| 12 in. crank shaper, Bement. | 12 in. crank slotter, Bement. |
| 20" Bement, 220 v. motor, traveling head, like new. | 14 in. crank slotter, Niles. |

SECOND-HAND MACHINERY

Niles-Bement-Pond Company—Continued.

RAILROAD MACHINERY.

46 in. car wheel lathe, Bement.
Niles double axle lathe.

Bement double axle lathe.
Putnam double axle lathe ex. heavy.

PLANERS.

22x22x6 Harrington.
26x26x7 Niles, heavy type.
26x23x16 Miles, 2 hds.
30x30x6 Pond, 1 head.
30x30x8 Pond, 2 heads.
30x30x11 Niles, 1 head.
30x30x24 Sellers, 2 hds.
36x36x 8 Niles, 1 head.
36x36x14 Pond, 4 heads.
36x36x20 Pond, 3 hds.
42x42x20 Miles, 3 hds.

48x48x12 Niles, 3 hds.
48x48x16 Pond, 4 hds., heavy, 220 v. motor.
48x48x20 Sellers, 3 hds.
72x60x20 Niles, 2 hds.
86x86x30 Pond, 4 heads, reversing motor drive.
96x96x30 Niles, 4 heads, belt or motor drive.
14'6"x12'x30' Niles, 4 heads, 220v., pneumatic clutch dr., wt. 335,000 lbs.

MISCELLANEOUS.

Bar cut-off saw, 22" diam. blade.
Bending and straightening machine, horizontal, for 10 to 15 in. beams and channels.
Cut-off machine, 24 in. P. & W.
Cut-off machine, 44 in. Starr.

Grinder, wet tool, Gisholt.
Grinder, drill, 3 in. Sellers.
Grinder, plain, 5x32 in. Landis.
Grinder, univ., 10x30 Landis.
Grinder, 12x96 in. Springfield.
Saw grinder, automatic.

FOR SALE BY

The Esterline Company,

Indianapolis, Ind.

24 High-grade machine tools, used one year.

Automatic, No. 00 Brown & Sharpe.
Bulldozer, No. 2 Badger.
Drill press, Avey, ball bearing.
Drill, multiple spd., Fox No. 2.
Drill, multiple spd., Moline.
Gas furnace, Frankfort.
Grinders, disc, Nos. 2 & 4 Gardner.
Grinder, univ., No. 2 Cincinnati.
Grinder, plain, No. 1 Morse.

Lathe, Barnes.
Miller, hand, No. 6 Whitney.
Punch presses, Consolidated.
Sand blast, Lieman Bros.
Saws, Racine high-speed.
Tappers, Garvin.
Time clock, Int.
Vises, Reed.

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

5' and 6' Prentice Bros. radial drills, equipped with belt or motor drive, \$450.00 and \$475.00 each.

LATHES.

36"x12' Pond, geared face plate.
26"x12' Blaisdell, complete.
24"x16' Reed, complete.
24"x12' Reed, complete.
24"x12' Lodge & Shipley.

18"x 8' Reed, complete.
16"x 8' Lodge & Shipley, taper att.
16"x 8' Greaves-Klusman, speed bx.
14"x 7' Lodge & Shipley, complete.

TURRET LATHES AND SCREW MACHINES.

40" Gisholt; 2x26 Pratt & Whitney, with tool and bar equipment; No. 7 Bardons & Oliver, wire feed; No. 2 Warner & Swasey, and other small screw machines.

MISCELLANEOUS.

Boring mills, Bullard, Niles, Baush, horizontal and vertical.
Broaching machine No. 2.
Drill presses.
Gear shapers, Fellows 36".
Grinders, B. & S., Landis, Modern, Osterlein, universal.

Milling machines, plain and univ.
Milling machines, vertical.
Planers, all sizes.
Punch presses.
Punch and shear combined, No. 4 Perkins.
Steam hammers.

These machines are all modern and late type. Send for our list and prices.

SECOND-HAND MACHINERY

FOR SALE BY

The Motch & Merryweather Machinery Company,
707-715 Lakeside Av., N. W., **Cleveland, Ohio**
Branches: Detroit, Cincinnati, Pittsburg.
New, Rebuilt and First Class Used Machinery
Good Tools, Every One, and Guaranteed.

BORING MACHINES.

- | | |
|---|--|
| 2" Lucas horizontal table type boring machine, belt feed. | 2-30" Colburn, vert. swivel tur. head. |
| 4" bar Bement-Miles horizontal tbl. type boring machine. | 2-42" Bullard, vert. boring mill. |
| | 72" Pond double head, friction feed. |

DRILL PRESSES.

- | | |
|---|---|
| 6-spindle Quint turret. | 2-spindle 20" Mechanic hand wheel and lever feed. |
| 8-spindle adjustable Gardam. | 14" Foote-Burt, sgl. spdl. sensitive. |
| 4' Pond, plain belt drive, hvy. pat. | 4-spindle Barr 12" sensitive. |
| 4' Baush, plain radial belt drive. | 6-spindle Foote-Burt sensitive. |
| 4' Fosdick plain radial, single pulley, gear drive. | 2-spindle Foote-Burt sensitive. |
| 6' Prentice, gear drive. | 4-spindle Pratt & Whitney sensitive. |
| 34" W. F. & Barnes, sliding head. | 12" Taylor & Fenn, g. dr. sensitive. |
| 32" Pond, sliding head, belt p. f. | |

GEAR CUTTERS.

- | | |
|--|-----------------------------------|
| 5" Sloan & Chase hand feed spur and bevel. | 36" Gould & Eberhardt plain spur. |
| 24" Fellows gear shaper. | 40" Flather, plain spur. |
| 24"-8' Gould & E. spur and bevel. | 38" Fellows gear shaper. |
| 26" Brown & Sharpe, plain spur. | 48" Gould & Eberhardt plain spur. |
| 33" Gould & Eberhardt plain spur. | 60x16 Gould & Eberhardt pl. spur. |

GRINDERS.

- | | |
|--|--|
| No. 70 Heald, internal and equip. | No. 3 Landis, universal. |
| Wilmath & Morman drill, style P. | 10x72 Norton, plain and equipment. |
| Worcester drill, dry wheel. | 18" Besly double wheel disc. |
| 6x32 Norton, plain grinder with all equipment. | No. 200 Heald ring grinder. |
| No. 3 Landis plain. | Gisholt tool grinder. |
| 10x36 Landis, plain. | Leland & Falconer 24" dbl. wheel tool grinder. |
| 18x96 Norton, plain and equipment. | No. 3 Diamond polishing stand. |
| No. 1 Cincinnati, tool & cutter. | Heavy foundry grinder, 36" wheels. |
| No. 11 Brown & Sharpe, plain. | |

HAMMERS.

- | | |
|------------------------------|---|
| 25 lb. Bradley helve hammer. | 35 lb. Williams & White justice pwr. tire welding hammer. |
| 600 lb. Morgan steam hammer. | |

LATHES.

- | | |
|--|--|
| 14"x6' Hendey with taper att. | 18"x8' Lodge & Davis compound rest taper attachment. |
| 14"x6' Prentice all geared hd. c. r. | 18"x8' Flather plain rest. |
| 12-14"x6' Prentice compound rest engine, cone head, all equipment, some have taper attachment. | 20x10 Bradford compound rest. |
| 12"x6' Willard compound rest engine double back geared. | 20x12 Reed comp. rest with chucks. |
| 16"x6' Davis compound rest engine. | 22x12 Pond comp. rest and chuck. |
| 16"x6' Lodge & Shipley pat. hd. c. r. | 20x10 Johnson compound rest, geared feed and chuck. |
| 18"x8' Fay & Scott plain cone head. | 22x16 Pond compound rest, chuck. |
| 18"x8' Walcott & Wood comp. rest. | 38"x26' New Haven, compound rest. |
| 18"x8' Reed compound rest. | 50"x18' Fifield tri. grd. engine lathe. |
| | 39x9' roll lathe. |

MILLING MACHINES.

- | | |
|---|---|
| No. 2 Brown & Sharpe, universal, first class. | No. 2 Brown & Sharpe plain heavy milling machine. |
| No. 13 B. & S. Lincoln, late model. | No. 4 LeBlond, plain dbl. bk. grd. |
| No. 12 B. & S. Lincoln, late model. | No. 6 Becker, vertical, new. |
| 2-No. 13 Pratt & Whitney Lincoln. | |

PIPE MACHINES.

- | | |
|--------------------------------|--------------------------|
| 4" Jarecki steam pipe machine. | 12" Curtis pipe machine. |
| 6" Saunders lathe bed type. | |

SECOND-HAND MACHINERY

Notch & Merryweather Machinery Co.,—Continued.

PLANERS.

- | | |
|--|---|
| 10" stroke, Bush crank. | 24x24x8' Powell, old style. |
| 22"x4' New Haven single head. | 28x28x5' New Haven single head. |
| 22"x7' Gray single head. | 30x30x10 Whitcomb single head. |
| 24x24x6' Woodward & Powell single head, new. | 30x30x8' Lodge & Davis single hd. |
| | 36x36x10' Sellers, spiral drive one hd. |

PUNCH PRESSES.

- | | |
|-------------------------------|--|
| No. 164 Bliss notching press. | No. 3.3 $\frac{1}{2}$ and 4 Toledo pl. inclinable. |
|-------------------------------|--|

SCREW MACHINES.

- | | |
|--|---|
| No. 1 Krauth & Benninghofen screw machine. | 24" Warner & Swasey hollow hex. turret lathe. |
| 7" Brown & Sharpe screw machine. | 2x24 Jones & Lamson cone head turret lathe. |
| 14" Pratt & Whitney screw machine. | No. 55 Acme 4-spindle automatic. |
| No. 2 Foster turret lathe. | No. 53 Acme 4-spindle automatic. |
| No. 2 Bardons & O. screw machine. | 21" Gisholt turret lathe. |
| No. 4 Bardons & O. screw machine. | 24" Davis turret lathe. |
| 2x24 Jones & Lamson, turret lathe, sliding head. | |

SHAPERS.

- | | |
|---------------------------------------|--|
| 16" Ohio, single geared crank. | 24" Queen City, latest model, back geared, crank, good as new. |
| 15" Hendey friction. | 24" Walcott & Wood, shifting belt. |
| 20" Kelly, bk. g., crank good as new. | 20" Hendey friction. |
| 20" Hamilton back grd. crank, new. | 22" Smith & Mills, shifting belt. |
| 34" Gould & Eberhardt, b. g., crank. | |
| 24" Hendey, friction. | |

MISCELLANEOUS.

- | | |
|--|--------------------------------------|
| Bolt cutter, 1 $\frac{1}{2}$ National. | Portable planer, 40" stroke, Morton. |
| Bolt cutter, 2" double spindle Acme. | Slotter, 15" Betts. |
| Chuck machine, automatic 4 spindle Prentiss, cap. up to 7" diam. | Tapper, No. 1 Garvin. |
| Keyseater, No. 0 Baker. | Tapper, Pratt & Whitney. |
| | Tooth rounding machine, Ingle. |

FOR SALE BY

Herman L. Winterer, - 912 Beach St., Philadelphia, Pa.

LATHES.

- | | |
|--|---------------------|
| 36"x16' Putnam, triple geared. | 22"x10' Harrington. |
| 27"x12' Blaisdell, raising blks. to 33". | 20"x10' Blaisdell. |
| 24"x 8' American. | 19"x 6' Hamilton. |
| 22"x12' McCabe. | And many others. |

TURRET LATHES.

- 25"x7' Pratt & Whitney chucking lathe.
 No. 6 Brown & Sharpe turret lathe.
 No. 32 Garvin turret lathe.
 No. OHT Hartford automatic screw machine.
 Several Pratt & Whitney turret lathes.

PLANERS.

- | | |
|--|--|
| 48"x48"x14' Gray, 4 hds., diag. drive. | 36"x36"x10' Detrick & Harvey, open side. |
| 30"x30"x8' Flather. | |

SHAPERS.

- | | |
|-------------------|-----------------------|
| 28" Juengst. | 16" Smith & Mills. |
| 24" Barker, b. g. | 15" Hendey, friction. |
| 20" Walker. | |

MILLING MACHINES.

- | | |
|--|--|
| No. 4 Brown & Sharpe, plain. | No. 3 Fox, plain. |
| No. 1 $\frac{1}{2}$ Brown & Sharpe, plain. | No. 1 $\frac{1}{2}$ Cincinnati, universal. |
| No. 1 $\frac{1}{2}$ Brown & Sharpe, universal. | No. 1 Cincinnati, universal. |
| No. 3 Garvin duplex. | No. 14 Garvin, plain. |

DRILLING MACHINES.

- | | |
|-----------------------------|---------------|
| 6" Warren universal radial. | 20" Prentice. |
| 24" Barnes. | 20" Davis. |
| 22" Prentice. | |

PUNCHES & SHEARS.

- 30" gap Mahoning punch and shear, 1" cap.
 No. 16 Williams & White, 12" gap, cap. 1".

SECOND-HAND MACHINERY

FOR SALE BY

McCoy & Brandt, . . . 410 House Building, Pittsburg, Pa.

BOILER SHOP TOOLS.

Bending rolls, Cleveland, 14', cap.
 $\frac{1}{2}$ " plate, engine driven, 1 set.
 Bending rolls, 8', cap. $\frac{3}{8}$ ", motor drive.
 Bolt cutter, 3" Acme, belted.
 Bulldozer, No. 5 Williams-White.
 Bulldozer, No. 5 Ajax.
 Compressor, 16 & 10x10" Blaisdell,
 belted.
 Crane, 15-ton, 31'6" span, 22½ v. d. c.
 Metal saws, revolving, Q. & C., 36"
 blades. (2).
 Punch, 21½" Wilder, $\frac{1}{4}$ " thro $\frac{1}{2}$ ".
 Punch, No. 7 L. & A., 18" throat $\frac{3}{8}$ "
 thro $\frac{1}{2}$ ".
 Punch, No. 4 Long & A., 5" throat,
 cap. $\frac{1}{4}$ thro $\frac{1}{2}$ ".

Punch, 36" throat, $\frac{1}{2}$ thro $\frac{3}{4}$ ".
 Punch, horiz., Cleveland Style A-1,
 12" throat, 1½" thro 1".
 Punch, 42" Cleve. Style G, 2" thro 1".
 Punch, Cleveland Type G, 60"
 throat, 2" thro 1".
 Punch, dbl. end, Cleveland Type C,
 24" and 12" throats, 1" thro 1".
 Shears, rotary bevel, No. 4 Lenox,
 $\frac{1}{4}$ " plate.
 Shear, rotary splitting, Lenox $\frac{1}{4}$ "
 plate, 4' reach.
 Shear, dbl. angle, L. & A. Class B,
 cap. 6"x6"x1" angles, mounted on
 turntable, motor drive.

FOR SALE BY

Frank Toomey, Inc., . . . 127 N. Third St., Philadelphia, Pa.

LATHES.

30"x22' Bement-Miles.
 30"x18' Bement-Miles.
 28"x16' Fifeild.
 27"x21' Pratt & Whitney, taper att.
 26"x17' Johnson, taper attachment.
 26"x12' Fifeild.
 24"x10' Schumacher & Boye.
 21"x 9' Lodge & Davis.

18"x10' Schumacher & B., taper att.
 18"x 8' Le Blond, turret attach.
 18"x 8' Reed.
 16"x 8' Hendey-Norton, geared hd.,
 taper attachment.
 16"x 6' Hendey-Norton, cone head,
 taper attachment.

PLANERS.

60"x60"x14' Pond, two heads.
 60"x60"x14' Sellers, 4 heads.
 42"x42"x15' Niles, 3 heads.
 33"x33"x12' Woodward & Powell.
 28"x28"x 7' New Haven.

48"x48"x16' Detrick & H., 2 heads
 on cross rail, 1 side hd., arranged
 to plane 60".
 12" Moore crank planer.

SHAPERS.

24" American.
 20" Gould & Eberhardt.

18" American.
 12" Bement.

MILLING MACHINES.

16"x12' slab, heavy pattern.
 No. 5-B Becker-Brainard vertical,
 motor driven.
 No. 3 Cincinnati universal.
 No. 3 Kempsmith plain.

No. 3 Becker Brain'd pl., table 12x42.
 No. 1 Brainard plain, table 12x48.
 Pratt & Whitney plain, table 55x5.
 No. 6 Whitney hand millers, (4).

MISCELLANEOUS.

Bolt cutter, 1½" National.
 Boring mill, 72" Bickford, 2 heads.
 Boring mill, horiz., 48" Bement.
 Boring and turning mill, 48" Sellers,
 2 heads.
 Card cutting presses No. 103, (5).
 Hammer, 400 lb. Bement, single
 frame steam.
 Hammer, board drop, 500 lb., Pratt
 & Whitney.
 Internal grinding lathe, 16"x 5'
 Diamond.
 Drill, 26" Currier & S., slid'g head.
 Press, No. 3 Adriance.

Pipe machines, 3" and 6" Curtis &
 Curtis, hand power. (2).
 Presses, grd., Adriance, No. 406, (2).
 Presses, combined boring and wir-
 ing, No. 22 Adriance, (2).
 Pulley boring machine, 60" Har-
 rington, upright.
 Punch and shear, dbl. end, Sellers,
 30" throat, 1½" cap., wt. 35,000 lbs.
 Shear, single end, 50" throat, 2"
 capacity, engine driven.
 Turret lathes 1½" and 2" Foster &
 Kimball.

Dynamos, motors, engines and boilers. Wood-working machines both new
 and second-hand. Send for our stock books.

SECOND-HAND MACHINERY

FOR SALE BY

Joseph T. Ryerson & Son, • 16th and Rockwell Sts., Chicago

PLANERS.

Item.			
H 169	Sellers, 42x42x6 $\frac{1}{2}$, 2 heads.	H 168	Sellers, 42x42"x5'6", 2 heads.
H1004	Hamilton 36x36x10, var. sp'd.		

LATHES.

H 767	11x3 $\frac{1}{2}$, speed.	H 947	Schumacher & Boye, 18x6.
H1058	Lodge & Shipley, 14x6 g. h.	H1029	Whitcomb-Blaisdell, 18x8.
H 804	LeBlond, 14x8.	H 948	American, 18x10.
H1076	Lodge & Davis, 16x6.	H1028	Hamilton, 19x10, q. c. g.
H1027	Flather, 17x8, q. c. g.	H 838	Putnam, 32x16.

DRILLING MACHINES.

H1091	Cleveland, 15 ft. wall radial.	H1089	Prentice, 20" hand feed.
H 864	Quint 6 spindle turret head.	H1090	Barnes, 23" hand feed.

BORING MILLS.

H1097	Bullard 30", motor drive.	H1099	Niles, 37".
H 733	Bausch, 32", turret head.	H 775	Bullard, 60", 2 heads.

GRINDERS.

H 812	Landis No. 1 universal, range 9x24.
H 811	Brown & Sharpe No. 3 cutter and reamer grinder.
H1038	Ingersoll 36" inserted tooth cutter.
H 802	Cincinnati No. 2 universal tool grinder with 220 v., d. c. motor.
H 791	Valley City No. 9, disc and surface grinder.
H 987	Gisholt universal tool grinder.
H1056	Whitney 16" wet grinder.

PNEUMATIC TOOLS.

H 981	Sturtevant 38" exhaustor, 14" square discharge.
H1093	Ingersoll-Sargent 6x6 compressor.
H 982	Pedrick & Ayer, 16-8x10, compound air compressor.
H 984	Root No. 1, positive pressure blower.

MILLING MACHINES.

H 665	Ingersoll, slab 36x36x8.	H 964	Osterlein plain, 34x9x19.
H1066	Becker No. 5B, plain.	H1092	Cincinnati No. 3 plain.
H 860	Kempsmith No. 8 univ.		

SHAPERS.

H1098	American, 16" crank.	H1079	Rockford 24" crank.
H1061	Milwaukee 24" crank.		

TURRET MACHINERY.

H 655	Pratt & Whitney $\frac{1}{2}$ in. hand screw machine.
H 914	Conradson 24-32 turret lathe.
H 875	Garvin No. 1, $\frac{1}{2}$ " hand screw machine.
H 765	Bardons & Oliver, 13", hand screw machine.

MISCELLANEOUS.

H1085	Bevel shears, Lennox No. 2, 4" capacity.
H 773	Boring and drilling machine, Niles No. 2 $\frac{1}{2}$ N., horizontal.
H1094	Brake, Robinson 8 ft., cap. No. 14 gauge.
H1039	Concrete mixer, Ransom $\frac{1}{2}$ yd., steam drive.
H 672	Cutting-off machine, 3 in. Hurlburt & Rogers.
H1050	Gear cutter, 36" Superior.
H1010	Hammer, American, 25 lb. steam post.
H 860	Hammer, steam, 400 lb. Chambersburg.
H 246	Motor, Northern, 15 h. p., 220 v., 1200 r. p. m.
H 208	Profiling machine, No. 2 Pratt & Whitney.
H 771	Saw, Newton, 7 $\frac{1}{2}$ " bar.
H 623	Tapping machine, No. 1 Garvin automatic, $\frac{1}{2}$ " capacity.
H 870	Wood trimmer, Fox No. 6-E.

SECOND-HAND MACHINERY

FOR SALE BY

New Haven Manufacturing Co.,

New Haven, Conn.

We have for sale the following second-hand tools, which are now in use, of modern type and in first class condition, with full and complete equipment: Boring mills, vertical, 42, 44, 52, and 60", with two heads.

Drills, upright, 28" and 40".

Lathes, 18" to 28" swing, 8' to 14' long.

Planers, 24, 28, 34 and 40" square, 6' to 12' long.

FOR SALE BY

Harris Brothers Company,

35th & Iron Sts., Chicago, Ill.

Perfect operative condition. Get complete list of tools and equipment No. XH-213.

Lot No.

XH-13 Boring and turning lathe, stand. auto., Potter & Johnston.

XH-14 Drill grinder, double end, Yankee.

XH-16 Drill press, plain upright, 14" Barnes.

XH-17 Drill press, horizontal, Barnes No. 30.

XH-18 Gear hobbing machine, No. 1712 Barber-Colman, standard auto.

XH-15 Grinder, No. 24 Landis, standard.

XH-22 Keyseater, vertical, No. 0 Mitts & Merrill.

XH-19 Lathe, screw cutting engine lathe, 20"x8'8" American.

XH-20 Lathe, screw cutting, 16"x6' Bradford.

XH-12 Milling machine, power, 26"x12' Ingersoll.

XH-21 Punch press, vertical, No. 47½ Bliss.

FOR SALE BY

A. D. White Machinery Co.,

108-114 N. Jefferson St., Chicago

LATHES.

12"x 5' P. & W., taper and chucks.

16"x 6' Lodge & Shipley, q. c.

18"x 8' Schellenbach, q. change.

24"x10' Lodge & Shipley, q. c.

28"x12' Fifeild.

28"x25' Putnam.

DRILL PRESSES.

20" Prentice.

24" Aurora, sliding head.

28" Bickford, sliding head.

30" Kerkhoff, sliding head.

32" Bickford, sliding head.

36" Bickford radial.

36" American radial.

40" Aurora radial.

PLANERS.

24"x 6' Pond, 1 head.

26"x 6' Gray, 1 head.

26"x 8' Gray, 1 head.

28"x 8' Gray, 1 head.

32"x 8' Betts, 1 head.

38"x10' Gray, 1 head.

SCREW MACHINES AND TURRET LATHES.

16" No. 3 Pearson screw machine.

No. 24 P. & W. screw machine.

¾" Cleveland automatic.

¾" Pratt & Whitney automatics, (4).

No. 2 Garvin screw machine.

13" Drees turret lathe.

22" Lodge & Shipley turret lathe.

21" Gisholt, big bore.

24" Gisholt, big bore.

PUNCH PRESSES.

No. 2 Ferracute.

No. 16 Wold.

No. 5 Niagara, o. b. i.

No. 31 Bliss gap press.

No. 45 Crosby, (2).

36" Keene multiple punch.

MISCELLANEOUS.

Blowers, No. 4 Garden City, (2).

Boring, drilling and milling, No. 2

Franklin universal.

Brake, hand, No. 3 Chicago, 8' steel,

No. 16 gauge.

Grinder, cutter, H. G. Barr.

Grinder, Yankee drill, style "B".

Grinder, disc, No. 1-B Besly.

Hammer, power, 50 lb. Dienelt.

Keyseater, portable, 16" Morton.

Miller, plain No. 12 Garvin.

Miller, plain No. 9 Kempsmith.

Miller, univ. No. 24 Oesterlein.

Riveter, 3-16" Adt.

Shaper, 14" P. & W., univ. vise.

Shaper, 16" Smith & Mills.

Shaper, 24" Gould & Eberhardt.

SECOND-HAND MACHINERY

FOR SALE BY

Prentiss Tool & Supply Co., New York, Boston, Buffalo, Syracuse.

BORING MILLS.

- | | |
|-----------------------------|------------------------------------|
| 24" bar Binsse, horizontal. | 42" Rogers, vertical, two heads. |
| 34" Gisholt, turret head. | 60" Bausch, vertical, two heads. |
| No. 2 Rockford horizontal. | 72" Pond, two heads, late pattern. |

DRILLING MACHINES.

- | | |
|--------------------------------|--------------------------------|
| 1 and 4 spindle Taylor & Fenn. | 6" Bickford, universal radial. |
| 20" Barnes, plain lever feed. | No. 24 Foote-Burt, high speed. |
| 24" G. & E. sliding head. | 34" universal radial. |
| 42" Hamilton, plain radial. | 6-spindle Gardam, multiple. |

GRINDERS.

- | | |
|----------------------------------|----------------------------------|
| No. 2 Binsse, surface. | Nos. 1 & 3 Brown & Sharpe, univ. |
| 14x72, and 18x168 Norton, plain. | No. 60 Heald, internal. |
| No. 11 Landis, plain. | No. 70 Heald, internal. |

MILLING MACHINES.

- | | |
|--------------------------------------|-------------------------------|
| Nos. 1, 2 & 3 Cincinnati, universal. | No. 14 Hendey, plain. |
| No. 5 Becker, vertical. | No. 4 Burke, bench. |
| No. 2 Garvin, universal. | No. 2 Fox, hand. |
| No. 5 Cincinnati, plain. | No. 24 Brown & Sharpe, plain. |

LATHES.

- | | |
|--|--|
| 14"x 6" Lodge & Shipley, c. r., p. c. f. | 26"x15" Prentice Bros., motor drive. |
| 15"x6" P. & W. tool room, latest pat. | 26"x18" Pond, c. r., p. c. f. |
| 16"x6" Lodge & Shipley, patent hd. | 36"x15" Lathe & Morse, c. r., p. c. f. |
| 16"x8" Prentice Bros., c. r., p. c. f. | 38"x20" Fay & Scott, c. r., p. c. f. |
| 16"x 8" Bullard, c. r. | 40"x18" Newark, c. r., p. c. f. |
| 18"x10" Porter, c. r., p. c. f. | Lo-Swing lathe. |
| 18"x10" Lodge & Shipley, patent hd. | 26-42"x12" Fay & Scott, gap. |
| 20"x10" Draper, c. r., p. c. f. | 32"x18" column facing lathe. |
| 20"x14" Fay & Scott, c. r., p. c. f. | 16"x10" automatic threading. |
| 22"x 6" Reed, c. r., p. c. f. | 60" Stevens, pulley. |
| 22"x10" Bullard, c. r., p. c. f. | 14"x 5" American, Fox. |
| 24"x12" Putnam, c. r., p. c. f. | 22" Bogert, crankshaft. |

PLANERS.

- | | |
|-----------------------------------|-----------------------------------|
| 15"-15"x 3" Pratt & Whitney. | 42"x42"x14" Pond, 2 heads. |
| 24"x24"x 4" Wilson, 1 head. | 48"x48"x10" Powell, 2 heads. |
| 24"x24"x6" Gray, 1 head. | 42"x42"x14" Woodward & P., 4 hds. |
| 30"x30"x10" Bement, 2 heads. | 52"x42"x12" Cincinnati, 2 hds. |
| 36"x36"x 8" Gray, 1 head. | 60"x50"x10" Gray, 2 heads. |
| 36"x36"x12" Lodge & Davis, 2 hds. | 71"x69"x14" Pond, 2 hds. |

HAMMERS.

- | | |
|-----------------------|---------------------------------|
| 25 lb. Dupont, trip. | 1200 lb. Billings, drop. |
| 50 lb. Bradley, trip. | 1000 lb. Pratt & Whitney, drop. |

PRESSES.

- | | |
|-----------------------------|----------------------------|
| No. 4 Mossberg & Granville. | No. 2 Hibbard, inclinable. |
| No. 1 V. & O. | E. 12 Ferracute, inclined. |

SCREW MACHINES.

- | | |
|--|---------------------------------|
| 14"x9" Acme, wire feed. | 14" Windsor, wire feed. |
| No. 2 Garvin, wire feed. | 24" American, heavy. |
| 24" & 3" J. & L. flat tur., late pat. | 24" Gridley, auto. |
| No. 6 Brown & Sharpe, wire feed. | 4" 1 and 1 1/2" Hartford, auto. |
| No. 11 Bardons & O., 3 1/2" wire feed. | 4" Pratt & Whitney, auto. |
| 4" Warner & Swasey, wire feed. | Nos. 53 & 55 National-Acme. |

SHAPERS.

- | | |
|-------------------------------|------------------------------------|
| 15" Hendey, friction. | 16" Cincinnati back geared, crank. |
| 16" Gould & Eberhardt, crank. | 20" Springfield, crank. |

MISCELLANEOUS.

- | | |
|----------------------------------|--------------------------------------|
| Automatic pinion cutter, Slate. | Gear cutters, 24" and 48" G. & E. |
| Bending rolls, 8', 3" cap. | Gear cutter, No. 1 Whiton, spur & b. |
| Bolt cutter, 3" Acme. | Motors, 3, 5, 7 1/2 and 10 h. p. |
| Broaching mchs., Nos. 3 & 4 LaP. | Pipe machine, 3" and 8" Jarecki. |
| Centering machine, 5" Whiton. | Pipe machine, 4" Saunders. |
| Cold saw, 20" Burke. | Profiler, 2 sp. Garvin. |
| Cold saw, No. 12 Higley. | Slotter, 10" Putnam. |
| Dynamometer, 40 h. p. Sprague. | Tumbler, 30"x24" Smith. |

SECOND-HAND MACHINERY

FOR SALE BY

Brown-McDonald Machinery Co.,

906-908-910 North Market Street, . . . St. Louis, Mo.

LATHES.

18"x10' Flather, h. s.	17"x 8' Fifield.
14", 16" & 18" Monarch, new, (5).	20"x8' Porter, h. s., compound rest.
14"x 8' Flather, h. s., comp. rest.	20"x12' Bradford, h. s., cpd. rest.
14"x 8' Champion, h. s., comp. rest.	36"x16' Fifield, comp. rest.
16"x 6' Hamilton.	Speed lathes, all sizes, (5).

DRILLING MACHINES.

20" Silver and Champion, new, (3).	36" Gang radial.
3 & 4 spindle Reed sensitive.	50" Sellers, b. g.
28" Barnes, b. g., p. f., with tap. att.	32" Hoefer, s. h. b. g. power feed.

PLANERS.

18"x18"x4 1/2' Whitcomb.	24"x24"x7' Niles.
30"x30"x9' New Haven.	

MISCELLANEOUS.

Air compressor, 8x8 Star vert..belted.	Brakes, 8' & 10', double truss.
Brake, 10' Robinson, cap. 16 gauge.	Floor crane, No. 4 Hercules.
Large stock of Emery Grinders, Blowers, Punch & Shears, etc.	

FOR SALE BY

The Osborne & Sexton Machinery Co., . . . Columbus, Ohio.

LATHES.

11"x5' South Bend, h. s.	18"x10' Pond, overhauled.
15"x5' Putnam.	20"x12 Pond, comp. rest.
15"x8' Porter.	28"-48"x13' centers, Harrington.
16"x6' Pond, overhauled.	22" Fay chucking lathe.

SHAPERS AND PLANERS.

20" Walcott.	30" Morton, draw cut.
20" Smith & Mills.	32x32x6' and 8' both Gray's.

DRILLING MACHINES.

22, 24 and 30" Hamilton.	Foot-Burt 4-spd. multiple.
Quint 6-spindle multiple.	Foot-Burt 24" heavy duty.
4-spd. Niles, 2" capacity.	Bickford 4-spd. gang, 1 1/2 capy.

MISCELLANEOUS.

Cold saw, Lucas, 8" stock.	Press, o. b., No. 3 Crosby.
Hammer, helve, 50 lb. Bradley type.	Rolls, Toledo, shovel blanking.
Hammer, power, 150 lb. Beaudry.	Screw machine, No. 4 W. & S.
Hammers, drop, 750 and 3,000 lbs.	Screw mchs., Cleveland auto.. (2).
Keyscater, No. 2 Baker.	Shear, pwr., 42" Stoll, 16-ga. metal.
Miller, 1 1/2 plain, dividing head.	Threading mchs., Webster & P.. (2).

FOR SALE BY

Western Machinery Co., 610 Baymiller St., Cincinnati, Ohio

LATHES.

14"x6' LeBlond, hol. spin., p. r.	18"x8' Lodge & Davis, hol. sp. pl. r.
14"x8' Cisco, blocks to 20".	20"x10' Flather, hol. spin., c. r.
13"x5' Wagner, hol. spin., c. r.	22"x12' Niles, hol. spin., c. r.
16"x6' Gray, hol. spin., plain rest.	26"x12' Niles, hol. spin., c. r.
16"x6' Bement, sol. spin., c. r.	26"x12' Lathe & Morse, sol. sp., c.r.
17"x10' Gray, h.s.c.r. tur. on bed, taper.	32"x22 New York, solid spin c. r.

SHAPERS.

15" Parkin & Bosworth, crank.	20" Steptoe, geared.
16" Hendey, grd., micrometer att.	20"x6' Niles traverse.
18" Barker, crank.	24"x7' Niles traverse.

PLANERS.

20"x20"x4' Gray.	26"x26"x8' New Haven.
20"x20"x4' Pease.	42"x42"x16' Bement, \$325.

MISCELLANEOUS.

Drills, upright, 18-20-28 & 40".	Miller, Cincinnati No. 1.
Drill, 4' plain radial.	Presses, str. back Ferracute, (4).
Gas engines, 4-6-20 h. p.	Saws, power, (4).
Hammers, 25 lb.-40 lb.	

SECOND-HAND MACHINERY

FOR SALE BY

Marshall & Huschart Machinery Company,
Chicago - **Indianapolis** - **St. Louis**
 Bargains In Used Machine Tools. Send for complete List.

BORING MILLS.

- 30" Baush vertical lathe.
- 30" Bullard, belt feed, 4-chuck jaws.
- 14" King turret mill, 3-jaw comb. chuck.
- 36" Niles, one plain head, one 5-hole turret.
- 37" Baush, two swivel heads, four ind. chuck jaws.
- 48" swing car wheel borer, for 36" wheels.
- 52" Rogers & Hemphill, two swivel heads.

DRILLING MACHINES.

- National ten spindle automatic, capacity ten 5-16" drills.
- Four spindle Bickford gang, adj. spindle.
- Four spindle Barr sensitive, with chucks.
- Six spindle Taylor & Fenn sensitive, with chucks.
- 24" Mechanics, sliding head, back gears, power feed.
- 32" Hamilton, 34" Lodge-Davis, 42" Barnes, sliding hd., back gears, pwr. fd.

RADIAL DRILLS.

- 24" Gang, cone drive, swinging table.
- 3" Universal Radial Drill Co's plain.
- 3" Economic, plain.
- 5' Western full universal gear box, plain table.
- 6' Bickford plain, cone drive.

ENGINE LATHES.

- 11" Myers, compound rest.
- 12"x 5" Robbins, screw cutting.
- 16"x 8" Flather, compound rest.
- 16"x 8" Johnson, compound rest.
- 16"x 8" Lodge & Shipley, patent head, turret on bed.
- 17"x 6" Bradford, compound rest, raised to 20".
- 18"x 8" Lodge & Shipley, patent head, turret tool post.
- 18"x 10" Lodge & Shipley, patent head.
- 18"x 15" Whitcomb-Blaisdell, 3-step cone, compound rest, chuck.
- 20"x 10" American, geared head, compound rest.
- 20"x 10" Flather, compound rest.
- 22"x 16" Pond, compound rest, solid spindle.
- 26"x 20" Sellers, compound rest, good condition.
- 32"x 10" American, five step cone, compound rest.
- 42"x 20" Bridgeford, triple geared, raised to swing 50".
- Fitchburg Lo-Swing lathe, single pulley drive.

TURRET LATHES.

- 14"x 6" Lodge & Davis
- Lodge & Barker Fox Monitor, universal set-over turret.
- 2"x 24" Jones & Lamson flat turret, cone drive, friction hd., with equipment.
- 21" Gisholt heavy turret lathe.
- 42" New Haven heavy turret lathe.

MILLING MACHINES.

- No. 4 1/2 Garvin, plain.
- No. 1 Kempsmith universal.
- No. 5 Kempsmith plain, all feeds.
- No. 3 Owen plain.
- No. 1 1/2 Owen universal.
- No. 3 Cincinnati universal, cone drive, all power feeds.
- Newton duplex, table 6'5"x 12 1/2".
- 22"x 22"x 12" Newton slab miller.

GEAR CUTTERS.

- 18" Brainard, spur and bevel.
- 22" Gould & E., spur and bevel.
- 30" Flather, spur, full automatic.
- Norris four spindle semi-automatic.

PIPE MACHINES.

- 2" Williams, with dies.
- 3" Saunders, 6 sets dies.
- 6" Cox, 6 sets die heads and dies.
- 8" Eaton, Cole & Burnham.

PLANERS.

- 24"x 24"x 6' Cincinnati.
- 30"x 30"x 10' Gleason.
- 48"x 36"x 20' Cincinnati, two heads.

SECOND-HAND MACHINERY

FOR SALE BY

The S. W. Robinson & Son Company,

Columbus, Ohio

RIGHT ANGLE DRIVE.

One 30 h. p. "Modern" right angle drive or power transmitter, made by the Robinson-Tilton Machinery Co.; it has never been used and is in excellent condition, ready to install on floor or ceiling.

FOR SALE BY

L. F. Seyfert's Sons, Inc.,

437 North Third St., Philadelphia

HAMMERS.

1500 lb., steam, McDougall & Potter.
800 lb., steam, Chambersburg.
500 lb., belt, Champion Beaudry.
400 lb., steam, Erie Foundry Co.
200 lb., upright helve, Bradley.

200 lb., upright strap, Bradley.
100 lb., belt drop.
65 lb., belt, Champion.
30 lb., belt, Champion.
15 lb., helve, Bradley, (2).

PRESSES.

No. 3 Henderson.
No. 3 Bliss.
P-2 Ferracute.

No. 1 Phila. Machine Co.
Foot-power Bliss, bench, (8).

MISCELLANEOUS.

Milling mch., pl., No. 34 Oesterlein.
Milling mch., pl., No. 20 Oesterlein.
Milling machine, plain, Burke.
Milling machine, hand, Burke.
Radial drills, post, 14' arm Prentice Bros., (2).
Radial drill, universal, 8 1/2' Bickford, motor driven.

Radial drills, plain, 5' Prentice Bros., (2).
Radial drill, plain, 52" Bickford.
Turret lathe, No. 2 Bardons & O.
Turret lathes, 16"x6" Pratt & W., (2).
Turret lathes, 16"x6" Warner & S., (2).
Turret lathe, 16"x6" Pratt & W.
Turret lathe, No. 4 Windsor.

FOR SALE BY

Spears & Riddle Co.,

Wheeling, W. Va.

GRINDERS.

10x72" Landis, universal.
10x36" Norton.
6x32" Norton.
No. 60 Heald, cylinder.
Heald, electric ring.

Cincinnati, cutter.
LeBlond, cutter.
Diamond, water tool, 30x4" wheel.
Barnes, water tool, 24x2" wheel.
Worcester, twist drill.

DRILL PRESSES.

28" Aurora, upright.
24" Aurora, upright.
20" Aurora, upright.
24" lever, upright, (2).
Barnes 3-spindle gang drill.
10" Barnes geared drill.

10" Barnes friction drill.
No. 1 Allen, sensitive.
7" Henry & Wright, sensitive.
No. 23 Foote-Burt, high duty, (2).
No. 24 Foote-Burt, high duty, (2).
Whiton center drill.

LATHES.

18"x6" Lodge & Shipley.
17"x8" Bradford.
14"x6" Lodge & Shipley.

16"x6" Springfield, stud, (2).
12"x5" speed lathe.
16"x10" speed lathe.

MILLING MACHINES.

No. 3 Cincinnati, vertical.
No. 2 Cincinnati, vertical, (2).
No. 2 A Kearney & Trecker.

No. 2 Cincinnati, universal.
Kemp Smith Lincoln miller.
Whitney hand miller.

TURRET LATHES.

3" Jones & Lamson.
1 1/2" Dreses, turret.

16" Warner & Swasey, turret.
12" Warner & Swasey, turret.

MISCELLANEOUS.

Automatic, Gridley, for piston and rings.
Belt lacer, Peerless.
Bolt cutter, 1 1/2" Acme.
Boring mill, horiz., No. 0 Fosdick.
Buffing mch., No. 7 Blount.

Cold saw, No. 15 Lea-Simplex.
Gear cutter, No. 1 G. & E.
Keyseater, No. 3 Baker.
Nut facer machine.
Polishing machine, belt.
Vertical turret lathe, 24" Builard.

SECOND-HAND MACHINERY

FOR SALE BY

Brown & Zortman Machinery Co., 2535 Liberty Ave., Pittsburg, Pa.

LATHES.

- 36"x16' Lodge & Shipley, triple geared, with taper, (good as new).
- 36"x20' Betts (double back geared into face plate).
- 26"x14' Gleason oil tool lathe, with taper.
- 26"x16' Prentiss oil tool lathe, with taper.

SHAPERS AND PLANERS.

- 24" Hendey shaper, friction drive.
- 26" Cincinnati triple geared rack shaper.
- 30" Morton draw-cut shaper.
- 42"x42"x18' heavy pattern Betts planer, with 2 heads on rail (good as new).
- 36"x36"x10' G. A. Gray Co's heavy pattern planer, with 3 heads (absolutely as good as new).
- 28" Juengst worm-driven horizontal crank shaper (in A-1 condition).

TURRET LATHES.

- No. 60 Garvin screw machine, capacity $\frac{1}{2}$ " through wire feed.
- No. 1 Garvin screw machine, automatic chuck, capacity 1".
- No. 4 Hardous & Oliver turret lathe, hole in spindle 1 9-16".
- No. 2 American Tool & Machine Co's, turret lathes, with friction head (absolutely as good as new). (2).
- Jones & Lamson flat turret lathe, collets $\frac{1}{2}$ " to 2".

BORING MACHINES.

- 73" Bickford vertical boring and turning mill, with 2 swiveling heads.
- 50" Niles pulley-boring machine.

RADIAL DRILLS.

- 42" Bickford radial drill, plain table.
- 6" Niles half-universal radial drill.

GRINDERS.

- Diamond universal grinder, 10" swing, 25" between centers.
- No. 2 Landis universal grinder, 10" swing, 30" between centers.

MISCELLANEOUS.

- Pipe machine, Armstrong, hand and power, capacity 1" to 4".
- Pipe machine, No. 95 Forbes, hand or power, $\frac{3}{4}$ " to 6".
- Pipe machine, No. 70 Forbes, hand or power, $\frac{1}{4}$ " to 2".
- Punch, single end, No. 4 Long & Allstatter, 10" throat, $\frac{1}{4}$ " through $\frac{1}{2}$ ".

Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**

In replacing our manufacturing equipment, we find the following first class Used Machine Tools, which we offer at attractive prices:

LATHES

16"x 8' Reed.
17"x 6' Gray.
18"x 8' Dodge & Shipley, single, pulley driven. (2).
20"x 8' Lodge & Shipley, q. c. g.
20"x 10' Lodge & Shipley, q. c. g.
20"x 12' Lodge & Shipley, q. c. g.
24"x 8' Lodge & Shipley, q. c. g.

SPECIAL LATHES

No. 3 Lodge & Shipley Rapid Reduction Lathe.
24"x 7' Lodge & Shipley Chucking Lathe.
14"x 6' Towsley Speed Lathe.

METAL SAWS

Globe Power Hack Saw, 8" cap.

MISCELLANEOUS MACHINES

One Marion Double Grinder.
One Marion Double Grinder on stand.
One Diamond Disc Grinder on column.
One Sturtevant Blower, Diameter of outlet 24".
Universal Swivel Table for Radial Drill.
Brown & Sharpe Grindstone Frame for 5"x36" Stone.
One Mueller Grindstone Frame for 4"x27" Stone.
One 12"x40" Mumford Molding Machine.
One Ohio Planer, 24"x24"x12' with two heads on cross rail.

The Lodge & Shipley Machine Tool Co.
CINCINNATI, OHIO, U. S. A.

WHEN YOU INQUIRE

of advertisers herein, won't you kindly remember to say somewhere in your communication that the inquiry comes from Hitchcock's Machine Tool List? Advertisers are human; they like to know that the medium in which they spend their money is received and consulted by machinery users. Not being mind readers, they can only know this when you tell them, and if you neglect to tell them, the Tool List is deprived of credit for the service it has rendered.

THE E. L. ESSLEY MACHINERY CO

555-557 WASHINGTON BLVD CHICAGO
222 GRAND AVE MILWAUKEE

These tools should be of interest to you.
Some are rebuilt and others brand new,
as indicated. Write for full description
and special prices.

Upright Drills and Radials.

- 1-sp. GUARANTEE H-S. B-B
Sensitive, new 3-sp. ditto, new.
Diamond Wall Radial.
- 2' AMERICAN Sens. Radial.
- 4' No. 1 BICKFORD Plain Radial,
rebuilt.
- 6' POND, Heavy Plain Radial.

Lathes.

- 12-22x5½ BARNES Sliding Bed Ex-
tension Gap Lathe, new.
- 14x6 MONARCH, 3-step cone, dbl.
back geared.
- 16x6 MONARCH, Standard Pat-
tern, new.
- 16x6 SPRINGFIELD, Standard
Pattern.
- 18x10 MONARCH Standard Pat-
tern, new.

Milling Machines.

- No. 32 KEMPSMITH Lincoln-type
geared feed box, late type, fine
condition.
- No. 2 OWEN Plain, new, (2).
- No. 3 OWEN Plain, new.
- No. 3 OWEN Universal, new.
- BURR Keyseat Miller.

Screw Machines.

- No. 2 GARVIN, plain hd., auto. tur-
ret, collets, etc., fine shape.
- No. 12½ GARVIN, frict. hd., auto. ck.
auto. turret, collets, fine shape.
- No. 2 WARNER & SWASEY
13-16" cap., plain head.
- 4" GRIDLEY 4-sp. Automatic.

Miscellaneous.

- Band Saw, 36" SILVER, new.
- Boring Mill, 51" NILES, 2 heads.
- Boring machine, BINSSE Horizon-
tal, 3½" Bar.
- Boring machine, No. 1½ BARRETT
horizontal, 3½" bar.
- Boring Machine, No. 36 Rochester
Floor Type Boring, Milling, Drill-
ing, and Tapping Machine com-
plete with plain facing attachment,
block table, five high speed milling
cutters of various sizes, 5 HP West-
inghouse Motor, latest type ma-
chine, in use five weeks, as good as
new. Write for detailed descrip-
tion and attractive proposition.
- Broaching Mch., No. 3 LAPOINTE
M. T. CO.'S, 3 bars, fine shape.
- Cutting-Off Machine, HOLTON
heavy duty, new.
- Disc Grinder, No. 4 BESLY, 18".
- Gear Hobber, No. 1 ADAMS-FAR-
WELL.
- Gear Hobber, REYNOLDS.
- Grinder, No. 2 BATH Univ., 10x25".
- Mitering Machine, No. 5 FOX, fine
shape.
- Planer, 22"x22"x4' PEASE, one hd.
- Planer, 40x36x12' NEW HAVEN,
2 heads.
- Power Punch, 12" style "C" CLEVE-
LAND, new, cap. 1" in ½" plate.
- Punch, No. 6 WHITING, 15" tht.,
capacity 13-16"x½"
- Punch & Shear, No. 2 CINCIN-
NATI, 12" throat.
- Saw, SMITH & POST, Power Cold
Saw, cap. 4½" rds.
- Turret Lathe, 3"x36" JONES &
LAMSON, nearly new, bargain.
- Tapper, No. 1 GARVIN vertical.
- Wire Straightener, 3-16" SHUSTER,
"ADT" Model, cap. 4", new.

"New York's Greatest Clearing-House—J. J. McCabe"

McCabe offers:
Much Lower Prices
on much better than usual
Used Machinery

High-class Modern Machines—not run long—an opportunity which reminds you that you want such Tools when you can get them so low.

Large Lathes.

- 64" swing, 25½' bed, heavy, tri.-grd., "Niles-Bement-Pond."
- 56" swing, 28' bed, heavy, triple-grd. "Putnam Machine Co."
- 48" swing, 24½' bed, heavy, raise-blocks to 66" "Fitchburg."
- 42" swing, 20' bed, heavy, "Betts Machine Co.'s"
- 36" swing, 16' bed, heavy, "Putnam Machine Co.'s"
- 32" swing, 12' bed, heavy, "Pond Machine Tool Co.'s"
- 28" swing, 30' bed, heavy, "Niles-Bement-Pond."
- 27" swing, 14' bed, heavy, "Lodge & Shipley" geared head, qk.-change.
- 24" swing, 12' bed, heavy "Putnam Machine Co.'s"

Turret Lathes.

- 28" swing, Pond-Gisholt type—4" hollow-spindle.
- 26" swing, Bullard, triple-geared, 3½" hollow spindle.
- 24" swing, Gisholt, double carriage, 4½" hollow spindle.
- 22" swing, Potter & Johnston, semi-automatic 2" hollow spindle.
- 2"x24" Jones & Lamson, flat turret.

Milling Machines.

- Planer type 24"x38" "Niles-Bement-Pond."
- No. 24 plain, table 81"x17½" speed-box, "Brown & Sharpe."
- Manufacturers' style, table 58"x16" Newton.
- Vertical, table 53"x16" "Brown & S. Plain, No. 15 Garvin."

Large Planers.

- 76"x76"x14" "Niles-Bement-Pond," two heads.
- 72"x12"x14" "Pond Machine Tool Co." three heads.
- 60"x60"x12" "Niles-Bement-Pond," four heads.
- 56"x56"x16" "Gray," two heads.
- 48"x48"x16" "Pond Machine Tool Co.," three heads.
- 48"x48"x12" "Powell Planer Co.," two heads.
- 42"x42"x14" "Pond Machine Tool Co.," two heads.
- 38"x38"x12" "Gray," two heads.
- 36"x36"x16" "Pond Machine Tool Co." two heads.
- 36"x36"x8" "Gray," two heads.
- 30"x30"x6" "Niles-Bement-Pond," one head.

Upright Boring Mills.

- 120-84" swing, Betts double-head, extension type.
- 100" swing, Betts double-head.
- 80" swing, "Niles-Bement-Pond" double head.
- 72" swing, "Pond Machine Tool Co." double head.
- 51" swing, "Baush Machine Tool Co." double head.
- 44" swing, "King Machine Tool Co." double head.
- 42" swing, "Bullard" double head.
- 37" swing, "Bullard" double head.
- 32" swing, "King" dbl. head. qk. c.

Radial Drills.

- 4' Arm half-universal, "Bickford."
- 5' Arm plain, "Prentice Bros."
- 5' Arm full-universal, "Bickford."
- 5½' Arm plain, "Prentice Bros."

J. J. McCABE, 30 Church St., NEW YORK

Tucker's Safety First



Closed

Oil Hole Covers
Require but one hand to pump in the oil. Adapted to all kinds of mechanism having oil holes leading to a bearing.

*Send for Catalogue
Oil Hole Covers
and Compression
Grease Cups*



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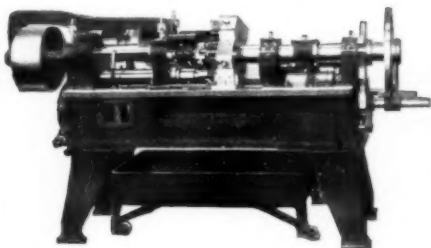
Rotary Head

W.C. & F.C. TUCKER, Hartford, Conn.

70% reduction in cost over the hand turret, is the experience of a manufacturer of brass goods, and the operator makes more money.

\$18 a day saved in making parts in an automobile plant, one operator attending two Automatics.

Single Head Machine



"New Britain" Automatics

Are chucking machines, for handling castings, forgings and second operation rod work, three to five times faster than by other methods.

Our Double Head Machine again cuts in two the operating time on work to be machined at both ends.

They drill, face, tap, thread, etc., in the time of the longest operation—and it's all automatic. The only hand operation is the simple work of loading and unloading the multiple chuck turret.

Write for illustrated catalog and send sample for production estimate

The New Britain Machine Co.

60 Chestnut St., New Britain, Conn.

